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90-1477

Supreme Court, U.S.
FILED
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In the Supreme Court
OF THE
United States

OCTOBER TERM, 1990

THE ALLEN GROUP INC., d/b/a
THE G&O MANUFACTURING COMPANY,
Petitioner,

VS.

MODINE MANUFACTURING COMPANY,
Respondent.

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

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QUESTIONS PRESENTED

1. Whether the Federal Circuit Court of Appeals in this and other cases is systematically ignoring the plain language of 35 U.S.C. section 103 and disobeying the decisions of this Court which prevent the grant of patent monopolies for claimed inventions that are obvious from prior art?

2. Whether, contrary to the decisions of this Court, a showing that a claimed invention was obvious from prior publications can be overcome by the commercial success of an embodiment of the invention?

3. Whether the Federal Circuit has prevented meaningful review of the application of the legal standard of obviousness by combining and confusing secondary considerations, such as commercial success, with the required comparison between the claimed invention and the prior art?

LIST OF PARTIES AND SUBSIDIARIES

The parties to the proceeding below were respondent Modine Manufacturing Company ("Modine"), which was the plaintiff, appellee and cross-appellant, and petitioner The Allen Group Inc. ("Allen"), which was the defendant, appellant and cross-appellee. In the proceedings below, Allen was sometimes referred to by the name of its division, The G&O Manufacturing Company ("G&O"). Allen's stock is publicly traded, and Allen has the following partially-owned subsidiaries: Grayson Electronics Company (a Virginia corporation); Sponmech Limited (a U.K. corporation); and Antenas Profesionales, S.A. (a Spanish corporation).

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MODINE MANUFACTURING COMPANY,
Respondent.

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

Petitioner respectfully requests that a writ of certiorari issue to review the judgment and opinion of the United States Court of Appeals for the Federal Circuit in this case.

OPINIONS BELOW

The opinion of the court of appeals is reported at 917 F.2d 538, and is included in the Appendix at pp. A-1 to A-8. The order of the court of appeals denying rehearing is included at p. A-10. The order and opinion of the district court on the parties' post-trial motions is reported at 14 U.S.P.Q.2d 1210. That order and opinion, and the district court's judgment, are included in the Appendix at pp. A-11 to A-39.

JURISDICTION

The opinion and judgment of the court of appeals was entered on October 22, 1990. Allen's timely petition for rehearing was denied on December 17, 1990. The jurisdiction of this Court is invoked pursuant to 28 U.S.C. section 1254(1).

STATUTES INVOLVED

Section 103 of 35 U.S.C. provides:

> "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

STATEMENT OF THE CASE

A. The Patent in Suit.

United States Patent No. 4,529,034 ("the '034 patent") was issued to Modine as assignee of the "inventor," Zalman Saperstein.[1] The '034 patent discloses nothing more than a vehicular radiator having joints that are welded or brazed on one side ("the liquid side"), and coated with solder or another sealant on the opposite side ("the air side").[2] App., pp. A-44 to A-46. The

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[1]The patent is included in the Appendix at pp. A-40 to A-52.

[2]In radiators and other heat exchangers, a liquid coolant flows inside tubes joined to a "header plate." Air passes over the outside of the tubes and cools the liquid. The joints between the tubes and the header plate are called "tube-to-header joints." The inner side of the tube-to-header joint is "the liquid side," and the outer side is "the air side."

Soldering, brazing and welding are long-used methods for joining two pieces of metal. Welding fuses two pieces of metal by heating them.

patent claims that the liquid-side weld or braze imparts strength to the joints, while the air-side sealant coating closes leaks in the weld or braze. App., p. A-43.

When Mr. Saperstein applied for the '034 patent in 1979, there was nothing new about welding or brazing radiator joints on the liquid side for strength, or sealing joints on the air side to stop leaks, or the combination of those two concepts. Nevertheless, after five years and eight rejections, Mr. Saperstein and Modine persuaded the Patent Examiner that their "invention" was patentable. They did *not* show the Examiner five published articles that had previously disclosed the same "invention."

The Patriarca articles,[3] which were published in 1957 and 1968, described welded joints sealed on the air side to prevent leaks — the same construction that Saperstein claimed to have invented in 1979. Those articles discussed heat exchangers used in the nuclear industry, which have welded joints.[4] Patriarca wrote that such joints, "although initially sound, are subject to cracking during cyclic service at high temperatures." Patriarca described "[a]n obvious solution" to this problem:

> "*An obvious solution to the problem would be to relieve the notched condition* [in the joint] *by the use of a suitable back braze . . .* " (December 1957 Welding Journal, at 1174) (emphasis added).

Soldering and brazing form the joints by using a separate filler material with a melting point below that of the metals to be joined. Soldering differs from brazing in that soldering is done below, and brazing above, 800°F.

[3]Patriarca, Slaughter & Manly, *Heat-Exchanger Fabrication,* December 1957 Welding Journal 1172; Slaughter, Franco-Ferreira & Patriarca, *Welding and Brazing of High Temperature Radiators and Heat Exchangers,* January 1968 Welding Journal 15. Copies of these articles and the aluminum radiator articles (*infra* note 5) are included in the Joint Appendix lodged with the court of appeals.

[4]A radiator is a type of heat exchanger. The '034 patent identifies two patents in the nuclear field as being among "[t]he most pertinent prior art of which I [Mr. Saperstein] am aware . . . ." App., p. A-44.

> *"A method of circumventing this problem is to back-braze the welded joint . . . "* (January 1968 Welding Journal, at 17) (emphasis added and footnote omitted).

By "back-braze," Patriarca referred to brazing the welded joints on the air side. *Id.*, at 18, Fig. 6. Similarly, the '034 patent specifies brazing as one of the air-side sealants. App., p. A-45. The Patriarca articles state that back-brazing has the additional benefit of reinforcing the weld. Similarly, the '034 patent states that the air-side sealant serves a "secondar[y]" purpose of reinforcing the joint. App., pp. A-45 to A-46. In short, Sapestein's "invention" had been disclosed in 1957, when Patriarca wrote that "the principle of welding and back brazing insures maximum reliability . . . ." December 1957 Welding Journal, at 1172.

The construction "invented" by Mr. Saperstein had also been disclosed in three articles published in 1970 and 1978,[5] which described the use of epoxy and solder to seal brazed joints in aluminum radiators. These articles disclosed that such brazed joints were "five to ten times stronger" than joints soldered on the liquid side, and that the air-side sealant "work[ed] extremely well" as a means of repairing leaks.

In the early 1980's, Modine developed a copper/brass truck radiator called the "Beta-Weld," which embodied Saperstein's "invention." The Beta-Weld was introduced just as the market was beginning to demand longer-lived trucks with more durable radiators. As a result, the Beta-Weld was a commercial success.

B. Proceedings Below.

Shortly after the '034 patent issued in July 1985, Modine sued Allen for infringement in the United States District Court for the Northern District of California. Federal jurisdiction was based on 28 U.S.C. section 1338(a). A jury returned a verdict that the

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[5]Weltman, *Aluminum Radiators,* March-April 1970 Automotive Cooling Journal 6; Warner & Weltman, *The Fluxless Brazing of Aluminum Radiators,* Society of Automotive Engineers Technical Paper Series (1978); Morley & Wilkinson, *The Repair of Aluminum Heat Exchangers,* October 1978 Welding Journal 15.

patent was valid and had been willfully infringed, and assessed damages of $55.6 million.[6]

Allen moved for judgment notwithstanding the verdict and for a new trial on the ground (among others) that the patent was invalid for obviousness in light of the published prior art. In response, Modine's only attempt to distinguish the Patriarca articles was to argue that a person designing a truck radiator would not look to heat exchangers used in the nuclear power industry. Modine's only attempt to distinguish the aluminum radiator articles was to argue that they did not mention the "flooding" of all joints with sealant, but only the "spot repair" of individual joints.

The district court ruled that the relevant prior art (*i.e.*, the art that would have been consulted by a person of ordinary skill) included heat exchangers used in the nuclear industry, as well as aluminum radiators and radiator repair techniques. App., p. A-16. Nevertheless, the court denied Allen's motion for judgment notwithstanding the verdict, emphasizing that under *Stratoflex v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed.Cir. 1983), "secondary considerations must, when present, be considered with all the evidence in the determination of obviousness, and not just when a doubt remains after reviewing the prior art." App., p. A-16.

Allen timely appealed, and the Court of Appeals for the Federal Circuit affirmed. That court disposed of the issue of obviousness as follows:

> "Here, while considerable prior art existed at the time Modine's invention was made, reasonable jurors could conclude that the differences between the prior art and the claimed invention were significant enough to render the invention nonobvious to one of ordinary skill in the art. Moreover, considerable objective evidence of nonobviousness, in the form of long-felt but unmet need and resulting commercial success, was presented in this case. We can

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[6]Modine ultimately accepted a remittitur to $14 million. *See* App., pp. A-33 to A-34. The district court denied Modine's motion to treble the damages under 35 U.S.C. section 284. App., pp. A-24 to A-25.

> therefore only conclude that the jury's implied findings relating to obviousness were supported by substantial evidence." App., p. A-3.

Neither the opinion of the district court, nor the opinion of the court of appeals, contains any comparison between the published prior art and the claimed invention. The only evidence identified by either court as supporting the jury's verdict on obviousness was the commercial success of the Beta-Weld (and related "secondary considerations").

Under 35 U.S.C. section 103 and *Graham v. John Deere Co.*, 383 U.S. 1 (1966), a court must determine as a matter of law, based on a comparison between the relevant prior art and the claimed invention, whether the invention would have been obvious to a person of ordinary skill in the art. If the courts below had made that determination, they could have reached only one conclusion: that the claimed invention was obvious from the published prior art. But the courts below did not undertake the analysis required by *Graham* and section 103. Instead, they lumped the statutory criteria together with the commercial success of the Beta-Weld, and cloaked the basis for their decisions beneath "implied findings" of the jury.

REASONS FOR GRANTING THE PETITION

In this and all cases involving the issue of obviousness, the Federal Circuit is ignoring 35 U.S.C. section 103 and disobeying this Court's landmark decisions construing that statute: *Graham v. John Deere Co.*, 383 U.S. 1 (1966); *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969); *Dann v. Johnston*, 425 U.S. 219 (1976); and *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273 (1976).

Section 103 (*supra* p. 2) sets forth the factors to be considered in determining whether a claimed invention was obvious. It does not mention commercial success. In *Graham v. John Deere Co.*,

383 U.S. 1 (1966), this Court summarized the statutory criteria of obviousness as follows:

> "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. *Against this background, the obviousness or nonobviousness of the subject matter is determined.*" 383 U.S. at 17 (emphasis added).

In *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 62 (1969), this Court again admonished "strict observance" of the criteria of section 103. In *Dann v. Johnston*, 425 U.S. 219, 226 (1976), this Court described the statutory criteria as "the *central* factors relevant to any inquiry into obviousness" (emphasis added).

Graham also holds that, while section 103 entails several factual inquiries, "the ultimate question of patent validity is one of law . . . ." 383 U.S. at 17. The *Graham* Court carefully compared both of the patents at issue with the prior art, and held both of them invalid for obviousness. *Id.* at 19-37.[7] This Court undertook similar analyses, with the same result, in *Anderson's-Black Rock* (396 U.S. at 58-60), *Dann* (425 U.S. at 220-22 and 226-30) and *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 275-77 and 280-82 (1976).

In contrast to the heavy weight that the Federal Circuit has given to commercial success and other secondary considerations, this Court in *Graham* sharply limited the relevance of such evidence:

> "Such secondary considerations as commercial success, long felt but unresolved needs, failure of others, etc., *might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.* As indicia

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[7]Similarly, in *Graham*'s companion case, this Court determined on the basis of a careful comparison that the prior art did not suggest the patented invention, and only then referred to the secondary consideration of skepticism. *United States v. Adams*, 383 U.S. 36, 48-52 (1966).

> of obviousness, these inquiries *may* have relevancy. 383 U.S. at 17-18 (emphasis added).

The limited role of commercial success in determinations of obviousness had been established by this Court long before section 103 was enacted in 1952.[8] *See Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 153 (1950) ("commercial success without invention will not make patentability"); *Toledo Pressed Steel Co. v. Standard Parts, Inc.*, 307 U.S. 350, 356-57 (1939) ("similarly without significance on the question of novelty is the fact that . . . utility resulted and commercial success followed from what patentees did"); *McClain v. Ortmayer*, 141 U.S. 419, 427-29 (1891) (although "in a doubtful case the fact that a patented article had gone into general use is evidence of its utility, it is not conclusive even of that — much less of its patentable novelty").

This Court's post-*Graham* decisions confirm that the "secondary" considerations are just that — subordinate to the criteria stated in section 103. *See Anderson's-Black Rock, supra*, 396 U.S. at 61 (while "[u]se of the radiant-heat burner in this important field marked a successful venture . . . , more than that is needed for invention"); *Sakraida, supra*, 425 U.S. at 282-83 (holding a patent invalid for obviousness although it was "doubtless a matter of great convenience, producing a desired result in a cheaper and faster way, and enjoying commercial success").

Despite these precedents, the Federal Circuit, since its creation in 1982, has elevated commercial success to a primary and often decisive criterion of nonobviousness, and has permitted the jury's evaluation of that and other secondary considerations to override the factors specified by Congress in section 103.[9]

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[8]As *Graham* points out, section 103 "was intended merely as a codification of judicial precedents . . . ." 383 U.S. at 17.

[9]The precursor of the Federal Circuit's doctrine was *Stevenson v. International Trade Commission*, 612 F.2d 546 (C.C.P.A. 1980). In that case, the court rejected decisions from other circuits holding that commercial success "can only tip the scales in favor of patentability in close cases." 612 F.2d at 553. Instead, the court held that "it is

The Federal Circuit's first decision in the area was *In re Sernaker*, 702 F.2d 989 (Fed.Cir. 1983), an appeal from the Patent and Trademark Office Board of Appeals. The court held that "the board *must always consider*" available evidence of secondary considerations, and that secondary considerations *"require a finding of nonobviousness if the matter be otherwise doubtful."* 702 F.2d at 996 (emphasis added). A few months later, the Federal Circuit reiterated that "evidence rising out of the so-called 'secondary considerations' must always when present be considered en route to a determination of obviousness." *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed.Cir. 1983). The court added:

> "Indeed, evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not. It is to be considered as part of all the evidence, not just when the decisionmaker remains in doubt after reviewing the art." *Id.* at 1538-39.

In *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed.Cir. 1983), *cert. denied*, 469 U.S. 851 (1984), the Federal Circuit applied *Stratoflex* to reverse a trial court's holding that a patent was invalid for obviousness. The court restated *Graham* as follows:

> "The objective evidence of nonobviousness [*i.e.*, the secondary considerations] . . . may in a given case be entitled to more weight or less, depending on its nature and its relationship to the merits of the invention. It may be the most pertinent, probative, and revealing evidence available to aid in reaching a conclusion on the obvious/nonobvious issue. It should when present always be considered as an integral part of the analysis." 721 F.2d at 1555.

The notion that secondary considerations should "always" be "an integral part of the analysis" is flatly inconsistent with *Graham*. There, such evidence was held to be "irrelevant" because the subject matter of the patent was "clearly evident from

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necessary that such secondary considerations also be evaluated" in determining obviousness. *Id.* (emphasis added).

the prior art as it stood at the time of the invention." 383 U.S. at 36. The notion that secondary considerations can ever be "the most pertinent, probative, and revealing evidence" of nonobviousness is even more inconsistent with *Graham*. See *id.* at 17-18, 35-36. Nevertheless, the erroneous teachings of *Sernaker*, *Stratoflex* and *Gore* have become a virtual litany in the Federal Circuit.[10]

Later cases have completed the subversion of *Graham* by upholding patents on the basis of commercial success even though, "standing alone, the prior art provides significant support for" a conclusion of obviousness. *Alco Standard Corp. v. Tennessee Valley Auth.*, 808 F.2d 1490, 1499 (Fed.Cir. 1986), *cert. dismissed*, 483 U.S. 1052 (1987).[11] In the Federal Circuit, commercial success "weigh[s] heavily in the determination of obviousness," *id.* at 1501, and has become, in many cases, the decisive factor in that determination. *See Simmons Fastener Corp. v. Illinois Tool Works*, 739 F.2d 1573, 1575-76 (Fed.Cir. 1984), *cert. denied*, 471 U.S. 1065 (1985); *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1382-84 (Fed.Cir.

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[10]*See, e.g., Jones v. Hardy*, 727 F.2d 1524, 1530-31 (Fed.Cir. 1984); *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1461 (Fed.Cir. 1984); *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 895-96 (Fed.Cir.), *cert. denied*, 469 U.S. 857 (1984); *In re Piasecki*, 745 F.2d 1468, 1471, 1475 (Fed.Cir. 1984); *Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1556-58 (Fed.Cir. 1985); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 306 (Fed.Cir. 1985), *cert. denied*, 475 U.S. 1017 (1986); *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 873-74 (Fed.Cir. 1985); *Custom Accessories, Inc. v. Jeffrey-Allan Indus.*, 807 F.2d 955, 960-61 (Fed.Cir. 1986); *Truswal Systems Corp. v. Hydro-Air Eng'g. Inc.*, 813 F.2d 1207, 1212 (Fed.Cir. 1987); *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1391-92 (Fed.Cir.), *cert. denied*, 488 U.S. 956 (1988); *Gillette Co. v. S.C. Johnson & Son, Inc.*, 919 F.2d 720, 725-26 (Fed.Cir. 1990).

[11]One commentator describes the patent in *Alco Standard* as "blatantly invalid." Adelman, *The New World of Patents Created by the Court of Appeals for the Federal Circuit*, 20 U.Mich.J.L.Reform 979, 991 n.46 (1987).

1986), *cert. denied*, 480 U.S. 947 (1987); *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1053-54 (Fed.Cir.), *cert. denied*, 488 U.S. 825 (1988).[12]

The Federal Circuit's mistaken doctrine is well illustrated by this case. Five published articles taught the claimed invention, providing indisputable evidence of the content of the prior art. A person of ordinary skill in the art would be charged with knowledge of those articles.[13] Modine's argument that the Patriarca articles were outside the scope of the relevant art was rejected by the district court (App., p. A-16), and was refuted by the '034 patent itself, which includes heat exchanger technology for the nuclear industry among "[t]he most pertinent prior art . . ." (App., p. A-44). Modine also argued that heat exchangers used in the nuclear industry have relatively thick tube sheets with no flanges, and are much more dangerous than truck radiators if they leak. These purported distinctions, however, have nothing to do with the obviousness of the claimed invention: welding or brazing one side of a joint for strength, and sealing the other side to prevent leaks. The fact that Patriarca's solution worked well — so well that it was relied upon to prevent nuclear accidents — hardly

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[12]Although a few panels of the Federal Circuit have held that the patentee's evidence of secondary considerations was insufficient to overcome "very strong" cases of obviousness on the primary *Graham* factors, those panels still held that secondary considerations must be considered. *See Newell Cos., Inc. v. Kenney Mfg. Co.*, 864 F.2d 757, 768-69 (Fed.Cir. 1988), *cert. denied*, 110 S.Ct. 62 (1989); *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907-08 (Fed.Cir.), *cert. denied*, 474 U.S. 843 (1985); *Merck & Co. v. Biocraft Laboratories, Inc.*, 874 F.2d 804, 809 n.* (Fed.Cir. 1989). In both *Newell and Merck*, there were dissenting opinions arguing that secondary considerations should have been given more weight. *See Newell*, 864 F.2d at 786-88 (Newman, J., dissenting); *Merck*, 874 F.2d at 811 (Bissell, J., dissenting).

[13]*In re Nilssen*, 851 F.2d 1401, 1403 (Fed.Cir. 1988); *In re Wood*, 599 F.2d 1032, 1036 (C.C.P.A. 1979). *Compare Graham, supra*, 383 U.S. at 19 (noting the remarkable rate of technological change over the previous 50 years, and holding that patent applicants are "charged with awareness of these changed conditions").

made it *less* obvious as a means of preventing leaks in vehicular radiators. [14]

Nevertheless, rather than decide the question of obviousness as a matter of law, the trial court left that question to a general verdict of the jury. The jury was instructed, in accordance with the Federal Circuit's rule, that it must consider "four factual inquiries which factor into the test for obviousness" (*i.e.*, the three *Graham* factors plus secondary considerations). In ruling on the post-trial motions, the district court did not apply the *Graham* factors, except insofar as it *rejected* Modine's arguments concerning the scope of the relevant art. Rather, the district court emphasized the importance of the secondary considerations (App., p. A-16) and deferred to the jury:

> "Considering the relevant field of prior art and all objective evidence in a light most favorable to Modine, drawing all reasonable inferences in favor of Modine, and abstaining from substituting judicial judgment for that of the jury regarding conflicting evidence, this Court is convinced that reasonable jurors could have concluded that [Allen] failed to present clear and convincing evidence of obviousness." App., pp. A-16 to A-17.

The Federal Circuit, in turn, upheld "the district court's ruling that a reasonable jury could conclude that the patent was not

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[14]Modine argued that the aluminum radiator articles dealt with methods of "repair," as distinct from methods of manufacture, and therefore were somehow irrelevant to the issue of obviousness. But the district court correctly ruled as a matter of law that "the relevant prior art includes aluminum radiators . . . and radiator techniques." App., p. A-16. Moreover, Modine's argument ignored the fact that the '034 patent is for a *construction*, not a method or a process. The aluminum radiator articles disclosed that construction, both as a result of the original manufacturing process and as a result of repair. Likewise, the '034 patent refers to the use of a sealant to close leakage openings "that occur either during the manufacturing process *or in subsequent use*." App., p. A-45 (emphasis added).

proven invalid by clear and convincing evidence." App., p. A-3.[15] The Federal Circuit stated that, the "considerable prior art" notwithstanding, "reasonable jurors could conclude" that the invention was not obvious under the three criteria of section 103. App., p. A-3. Under *Graham*, that issue should have been determined by the court; but in any event, the jury was not asked to apply the criteria of section 103 separately from commercial success. The jury was instructed, as the law of the Federal Circuit required, that the secondary considerations were a fourth factor that it must weigh together with the statutory criteria.

Having held that the jury's determination was conclusive, the Federal Circuit also asserted, without elaboration, that "given [the jury's implied] findings," the jury's verdict was not incorrect "even on *de novo* review." App., p. A-3. But the court of appeals did not identify the "implied findings" on which it relied, or explain the nature of its "*de novo* review," or indicate the weight given to the secondary considerations in that review.[16] The court

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[15]This was not an unusual disposition. From its creation in 1982 through 1988, the Federal Circuit affirmed three times as many jury verdicts as it reversed. Coolley, *What the Federal Circuit Has Done and How Often: Statistical Study of the CAFC Patent Decisions — 1982 to 1988*, 71 J. Pat. & Trademark Off. Soc'y 385, 397 (1989). When the lower court decision upheld the validity of a patent, the Federal Circuit in turn affirmed more than eight times as often as it reversed. *Id.* at 391. One commentator described the situation as follows:

> "There is a substantial risk that the combination of the right to a jury trial with the court's [*i.e.*, the Federal Circuit's] section 103 nonobviousness jurisprudence will enable patentees owning objectively worthless patents to obtain large judgments from alleged infringers. It would be tragic if the court's desire to give patent law the dignity it deserves should result in the subversion of the patent system's goal — to encourage the creation and exploitation of useful, new, and nonobvious inventions."

Adelman, *supra* note 11, at 1006-07.

[16]In *Dennison Manufacturing Co. v. Panduit Corp.*, 475 U.S. 809 (1986) (*per curiam*), this Court granted certiorari, reaffirmed the *Graham* test (*id.* at 810-11) and, "lack[ing] the benefit of the Federal Circuit's informed opinion on the complex issue of the degree to which

did not compare the indisputable disclosures of the published prior art with the claims of the patent to determine whether the "invention" would have been obvious to a person of ordinary skill in the art. The closest the court came to analyzing the evidence was to refer in passing to the "considerable prior art" which the jury might have disregarded, and the "considerable objective [*i.e.*, secondary] evidence" which the jury might have accepted.

Such obscurantism is not a proper discharge of the court's responsibilities under *Graham*. In no sense was the issue of obviousness in this case resolved *by the court* as an issue of law. Moreover, the Federal Circuit's cursory disposition of this case has a broader significance; it is the natural outcome of a rule that elevates commercial success to a primary criterion of patentability. By merging the purely factual and non-technical question of commercial success with the predominantly legal questions posed by section 103, the Federal Circuit has made the type of analysis that this Court undertook in *Graham* obsolete.

The Federal Circuit's doctrine of commercial success is not merely contrary to the precedent of this Court; it is also based on fallacious reasoning. The fact that some inventions are commercially successful does not mean that commercial success denotes invention. Inventions that are commercial failures may nevertheless be patentable.[17] Conversely, many "commercially successful" products are neither novel nor patentable; they owe their success to obvious modifications of the prior art, or to considerations of price, product quality, service, distribution channels, advertising,

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the obviousness determination is one of fact," remanded for further proceedings (*id.* at 811). As demonstrated by the opinion below, that "complex issue" is now completely obscured by the Federal Circuit's doctrine of commercial success.

[17]Although it insists that commercial success is always evidence of nonobviousness, the Federal Circuit inconsistently holds that the absence of commercial success or other secondary considerations is "a neutral factor" — *i.e.*, is never evidence of obviousness. *Medtronic Inc. v. Intermedics, Inc.*, 799 F.2d 734, 739 n.13 (Fed.Cir. 1986), *cert. denied*, 479 U.S. 1033 (1987).

consumer perception and the like.[18] Such products may simply be — as Mr. Saperstein said of his "invention" in this case — "at the right place at the right time." Indeed, if commercial success is to become the touchstone of patentability, one may question why patent rewards are needed to stimulate new inventions.[19]

American patent law should not accept, as the criterion of intellectually unique property, the mundane measure of commercial success rather than the standard of scientific and technical invention. Such a substitution would disregard the constitutional component of patent law. As this Court said in *Graham*: "Innovation, advancement, and things which add to the sum of useful knowledge are inherent requisites in a patent system which by constitutional command must 'promote the Progress of . . . useful Arts.' " 383 U.S. at 6, quoting U.S.Const. art. I, § 8, cl. 8.

Commentators have sharply criticized the Federal Circuit's reliance on secondary considerations, particularly commercial success, to uphold patents that would otherwise fail the *Graham*

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[18]*See Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp., supra,* 340 U.S. at 153 ("[t]o bring these devices together . . . was a good idea, but scores of progressive ideas in business are not patentable . . ."); *McClain v. Ortmayer, supra,* 141 U.S. at 428 (noting that "the great success" of the patentee's products was "due, partly at least, to the fact that he was the only one who made the manufacture of sweat pads a specialty, that he made them of a superior quality, advertised them in the most extensive and attractive manner, and adopted means of pushing them upon the market . . .").

[19]Recognizing that commercial success may be caused by factors other than invention, the Federal Circuit has required a "nexus" between the commercial success and the invention. *See, e.g., Demaco Corp. v. F. Von Langsdorff Licensing Ltd., supra* note 10, 851 F.2d at 1392. But this rule can lead only to speculation about what caused customers to purchase the product, instead of the statutory considerations of a comparison with prior art to determine whether the "invention" would have been obvious to persons of ordinary skill in the pertinent art.

test.[20] But the Federal Circuit's deviation from the standards laid down by this Court is no mere academic dispute. The results have been a great increase in the number of patents upheld by the courts;[21] many more patent infringement cases;[22] huge patent infringement judgments — from tens of millions of dollars to

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[20]*See, e.g.*, Harris, *The Emerging Primacy of "Secondary Considerations" as Validity Ammunition: Has the Federal Circuit Gone Too Far?*, 71 J. Pat. & Trademark Off. Soc'y 185, *passim, esp.* 188-190, 195-197, 200-201 (1989) (Federal Circuit's use of commercial success is directly at odds with *Graham*); Merges, *Commercial Success and Patent Standards: Economic Perspectives on Innovation*, 76 Calif.L.Rev. 803, *passim* (1988) (arguing that the Federal Circuit's "emphasis on commercial success is fundamentally unsound" (at 806), and criticizing the Federal Circuit's use of a "spurious inferential bridge between [commercial] success and significant invention" (at 874)); Sobel, *The Court of Appeals for the Federal Circuit: A Fifth Anniversary Look at Its Impact on Patent Law and Litigation*, 37 Am.U.L.Rev. 1087, 1089 (1988) ("circumstantial evidence of nonobviousness (such as commercial success) has been elevated to possibly the most probative objective indicia of nonobviousness, in contrast to the Supreme Court's relegation of such evidence to a 'secondary' category which 'may be relevant' "); Note, *A Critique of the Use of Secondary Considerations in Applying the Section 103 Nonobviousness Test for Patentability*, 28 B.C.L.Rev. 357, 359-360, 374-380 (1987) (commercial success "should never be given any independent weight in evaluating nonobviousness" because it is not relevant to the mind of one of ordinary skill in the art at the time of invention).

[21]*See, e.g.*, Dunphy, *Washington's Propatent Court*, Chemical Week, December 24, 1986, at 15; Andresky, *A Weapon at Last*, Forbes, March 10, 1986, at 46; Mack, *A Change in the Legal Climate*, Forbes, October 7, 1985, at 41.

[22]*See, e.g.*, Sobel, *supra* note 20, at 1090; Corcoran, *Likely Litigation; Companies Wield Lawsuits as a Market-Development Tool*, Sci. Am., March 1990 (vol. 262, no. 3), at 76.

almost $1 billion;[23] and vastly increased royalties.[24] In the case at bar, the jury awarded Modine $56 million — the equivalent of a 112% royalty on sales — and Modine moved to treble that award under 35 U.S.C. section 284. Even after being reduced by the trial court, the damage award was the equivalent of a 28% royalty on sales. These are staggering sums. Large, medium and small corporations face financial disaster as a result of the loosened standards for patent validity devised by the Federal Circuit.[25]

In *Graham*, this Court observed "a notorious difference between the standards applied by the Patent Office and by the courts," resulting in part from "the free rein often exercised by the Examiners in their use of the concept of 'invention.'" 383 U.S. at 18. Now as then, Patent Office proceedings are *ex parte*. Some patents issue after a cursory examination, while others (including the '034 patent) issue on the basis of questionable distinctions after repeated rejection. By its commercial success doctrine, the Federal Circuit has itself adopted the "relaxed standard" that *Graham* condemned (*see* 383 U.S. at 19), and crippled judicial review of patent monopolies.

Because the Federal Circuit has exclusive appellate jurisdiction in patent cases, 28 U.S.C. § 1292(c), the corrective influence of decisions from sister circuits has been absent. It is true that the

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[23]*See, e.g.*, Work, *Inventors' Just Rewards*, U.S. News and World Rep., March 3, 1986, at 43; Baldo, *Juries Love the Patent Holder*, Forbes, June 17, 1985, at 147.

[24]Pier, *The Surprising Power of Patents*, Fortune, June 23, 1986, at 57. In light of the Federal Circuit's pro-patent record, an increase in licensing and in the amount of royalties per license is explainable as an attempt to minimize potential costs. *See, e.g.*, Alster, *New Profits from Patents*, Fortune, April 25, 1988, at 185; Wiegner, *When the Going Gets Tough, the Tough Go To Court*, Forbes, December 28, 1987, at 36.

[25]Domestic enterprises are increasingly at risk. In fiscal years 1989 and 1990, foreigh applicants were issued approximately 46.6% of all U.S. patents, with each of five Japanese companies outstripping any U.S. company in the number of U.S. patents obtained in fiscal year 1990. *Foreign Patent Share Rise Levels Off*, Inside R & D, February 20, 1991, at 2.

Federal Circuit was created partly for the purpose of having patent appeals decided by judges familiar with scientific and technical concepts. But deference to the Federal Circuit as a specialized tribunal is wholly inappropriate where that court has *failed* to apply the scientific criteria of section 103, and substituted a nonscientific test of commercial success.

Only this Court can, and we submit that it should, stop the systematic flouting of its own precedents. As to the merits of the different positions of this Court and the Federal Circuit, while we have submitted reasons why the *Graham* decision is correct and the Federal Circuit is manifestly wrong, that question should be decided by this Court.

CONCLUSION

For the reasons stated, the petition for a writ of certiorari should be granted.

Respectfully submitted,

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Appendix A

United States Court of Appeals
for the Federal Circuit

90-1204, -1210

MODINE MANUFACTURING COMPANY,

Plaintiff/Cross-Appellant,

v.

THE ALLEN GROUP, INC., d/b/a
THE G & O MANUFACTURING COMPANY,

Defendant-Appellant.

DECIDED: October 22, 1990

Before MARKEY, Circuit Judge, MILLER, Senior Circuit Judge, and MICHEL, Circuit Judge.

MICHEL, Circuit Judge.

This case involves consolidated appeals concerning a January 19, 1990 final judgment of the United States District Court for the Northern District of California, No. C-85-6946, entered in response to jury verdicts that The Allen Group, Inc. had willfully infringed Modine Manufacturing Company's U.S. Patent No. 4,529,034 (for a heat exchanger used in vehicle radiators), and that the patent was not invalid or unenforceable. *Modine Manufacturing Co. v. Allen Group, Inc.*, 14 USPQ2d 1210 (N.D.Cal. 1989) (denial of post-trial motions of both parties). Allen appeals the district court's refusal to overturn the jury's verdicts. Modine cross-appeals the denial of its motions for enhanced damages and attorney fees. We affirm the rulings contested in both appeals.

BACKGROUND

Modine commenced this action in September, 1985 alleging that Allen's sales of the "Ultra-Fused" radiator infringed Modine's U.S. Patent No. 4,529,034, which claimed a vehicle radiator having certain construction of welded tube-to-header

joints. Allen counterclaimed for a declaration of patent invalidity and unenforceability, unfair competition, and violation of the Sherman Act. In the spring of 1989 the case was tried to a jury, which returned special verdicts finding that Allen had failed to prove by clear and convincing evidence that the patent was invalid, or that it was unenforceable for inequitable conduct. The jury also found that Modine had proven by clear and convincing evidence that Allen's infringement had been willful, and in a separate damages phase, returned a verdict of $55,634,153 in favor of Modine.

Allen moved for judgment notwithstanding the verdict and for a new trial, and Modine moved for increased damages, for attorney fees and for prejudgment interest. The district court denied Allen's motion for JNOV, but held the damage award excessive and ordered a new trial on damages unless Modine accepted a remittitur to $14,000,000. *Modine,* 14 USPQ2d at 1221. The court awarded prejudgment interest to Modine, but denied its motions for enhanced damages and for attorney fees. *Id.* at 1217, 1222. Modine accepted the remittitur, and the court entered final judgment on January 19, 1990.

The district court had jurisdiction to hear the complaint under 28 U.S.C. § 1338 (1988), and we have jurisdiction to hear both appeals pursuant to 28 U.S.C. § 1295(a)(1) (1988).

DISCUSSION

I

Allen argues that the jury erred in finding Modine's patent not to be valid under 35 U.S.C. § 103 because at the time the invention was made, the subject matter as a whole would have been obvious to a person of ordinary skill in the art. Although obviousness is a question of law, *Panduit Corp. v. Dennison Mfg. Co.,* 810 F.2d 1561, 1568, 1 USPQ2d 1593, 1597 (Fed. Cir.), *cert. denied,* 481 U.S. 1052 (1987), it is based upon underlying factual inquiries which are issues for the trier of fact. *See Loctite Corp. v. Ultraseal Ltd.,* 781 F.2d 861, 872, 228 USPQ 90, 97 (Fed. Cir. 1985). These factual issues are: (1) the scope and content of the prior art, (2) the differences between the most

pertinent prior art and the claimed invention, (3) the level of ordinary skill in the art, and (4) the objective evidence of secondary considerations of nonobviousness. *Id.* at 872, 228 USPQ at 97.

Our review of a denial of JNOV is limited to whether the jury's factual determinations were supported by substantial evidence and, if they were, whether "those findings cannot support the legal conclusions which necessarily were drawn by the jury in forming its verdict." *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1052 (Fed. Cir.), *cert. denied*, 484 U.S. 827 (1987). *See Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 893, 221 USPQ 669, 673 (Fed. Cir.), *cert. denied*, 469 U.S. 857 (1984). Here, while considerable prior art existed at the time Modine's invention was made, reasonable jurors could conclude that the differences between the prior art and the claimed invention were significant enough to render the invention nonobvious to one of ordinary skill in the art. Moreover, considerable objective evidence of nonobviousness, in the form of long-felt but unmet need and resulting commercial success, was presented in this case. We can therefore only conclude that the jury's implied findings relating to obviousness were supported by substantial evidence. *See Newell Companies, Inc. v. Kenney Mfg. Co.*, 864 F.2d 757, 765, 9 USPQ2d 1417, 1423 (Fed. Cir. 1988) (In ruling on a motion for JNOV, "[j]udges must accept the factual findings, presumed from a favorable jury verdict, which are supported under the substantial evidence/reasonable juror standard.").

Nor, given those findings, was its conclusion on obviousness incorrect, even on *de novo* review. *Id.* at 764, 9 USPQ2d at 1423. Accordingly, we hold that Allen has failed to demonstrate error as a matter of law in the district court's ruling that a reasonable jury could conclude that the patent was not proven invalid by clear and convincing evidence.

Allen also contends that the trial court erred in determining that Modine's patent was not unenforceable for inequitable conduct in the prosecution of the patent application. The ultimate question of whether inequitable conduct occurred is equitable in nature, committed to the discretion of the trial court, and will not

be overturned by this court unless it is clear that the determination is based upon a jury's findings of fact that are unsupported by substantial evidence or "a misapplication or misinterpretation of applicable law or that the ruling evidences a clear error of judgement on the part of the district court." *Kingsdown Medical Consultants, Ltd . v. Hollister Inc.*, 863 F.2d 867, 876, 9 USPQ2d 1384, 1392 (Fed. Cir. 1988) (in banc), *cert. denied*, 109 S. Ct. 2068 (1989) (quoting *PPG Indus. v. Celanese Polymer Specialties Co.*, 840 F.2d 1565, 1572, 6 USPQ2d 1010, 1016 (Fed. Cir. 1988) (Bissell, J., additional views) (discussing *Seattle Box Co. v. Industrial Crating & Packaging Inc.*, 756 F.2d 1574, 1581, 225 USPQ 357, 363 (Fed. Cir. 1985))). Establishing inequitable conduct for submitting false information, or for failing to disclose information to the Patent and Trademark Office (PTO) during the prosecution of the patent application requires proof by clear and convincing evidence of two facts: that the information was material and that the patentee acted with intent to deceive. *Kingsdown*, 863 F.2d at 872, 9 USPQ2d at 1389.

In this case Modine was accused of failing to disclose to the PTO information as to its own prior art research in radiator design and of concealing the fact that the named inventor, Mr. Saperstein, actually had the help of unnamed co-inventors. At trial, Modine presented evidence tending to show that any failure to disclose was inadvertent, and that in any case the inventor would have had no motive to intentionally lie about inventorship because the company would own any patent that might (and did) issue. Moreover, the persons accused of inequitable conduct actually testified as witnesses, and the jury's assessment of their character and credibility is entitled to great deference. Allen has failed to demonstrate that the determination that it failed to prove inequitable conduct was an abuse of discretion.

Allen further argues that the jury instructions constituted reversible error, first, because they submitted the issue of inequitable conduct to the jury, and second, because they contained an incorrect legal test for determining whether inequitable conduct had occurred (gross negligence is not enough for intent to deceive). Allen, however, failed to object at trial to these instruc-

tions,[1] and "[n]o party may assign as error the giving or the failure to give an instruction unless that party objects *thereto* before the jury retires to consider its verdict." Fed. R. Civ. P. 51 (emphasis added). Allen contends that an objection to the instructions was unnecessary since it had made clear in prior communications to the court its position that inequitable conduct was not a jury issue. It cites *Brown v. Avemco Inv. Corp.*, 603 F.2d 1367 (9th Cir. 1979) and *Martinelli v. City of Beaumont*, 820 F.2d 1491 (9th Cir. 1987), for the proposition that a formal objection is not necessary when the trial court has been made aware of a party's position. *Brown* and *Martinelli*, however, are inapposite.

In *Brown* and *Martinelli*, both parties had submitted *contradictory* proposed jury instructions and the trial judge had explicitly rejected one over the other. The Ninth Circuit judge held that in such a situation an objection to an instruction was not necessary under Rule 51 because the trial court had been made aware of the losing party's verbatim position as set forth in its contrary proposed instruction, and an additional objection would not have served to further focus the issue or change the court's mind. *Brown*, 603 F.2d at 1373; *Martinelli*, 820 F.2d at 1493-94. Here, on the other hand, the jury instructions proposed by the parties were not so diametrically opposed as to present Allen's position for the court. We simply do not believe the three earlier instances in which Allen claims to have made the trial court generally aware of its position constituted the sort of pattern of specific objection throughout the course of the trial, including the jury instruction phase, that was present in *Brown* and *Martinelli*. We hold that Allen's failure to object precludes it under Rule 51, Fed. R. Civ. P., from now challenging the jury instructions, both as to their submission of the ultimate question of inequitable conduct to the jury and as to their content indicating that gross negligence

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[1] The trial judge's opinion notes that Allen's only objection to the jury instructions was to "a portion of the instruction on willful infringement." *Modine*, 14 USPQ2d at 1215.

was not sufficient to show intent.[2] Therefore, we need not reach the merits of Allen's contentions.

II

Modine appeals the district court's denial of its motion for enhanced damages pursuant to 35 U.S.C. § 284 (1988). Section 284 provides that in a patent infringement case, a trial court "may increase the damages up to three times the amount found or assessed." The decision to increase damages is committed to the discretion of the trial judge and a district court's refusal to award increased damages will not be overturned absent a clear showing of abuse of discretion. *Rite-Hite Corp. v. Kelley Co.*, 819 F.2d 1120, 1126, 2 USPQ2d 1915, 1919 (Fed. Cir. 1987).

Modine seeks to overcome the difficult abuse of discretion standard of review by arguing that the trial judge's decision not to award enhanced damages disregards the jury's factual determination that the infringement was willful. This argument conveniently ignores our clear precedent that a finding of willful infringement merely *authorizes*, but does not *mandate*, an award of increased damages. *Id.* at 1126. 2 USPQ2d at 1919; *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 1581, 230 USPQ 81, 91 (Fed. Cir. 1986), *cert. denied*, 479 U.S. 1034 (1987). Nor is there merit to Modine's contention that the trial judge's statement, that willfulness was "sufficiently close on the evi-

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[2] Since Rule 51 requires an objection to the giving or failing to give an instruction, and since an issue is only given to the jury via an instruction, Rule 51 necessarily requires an objection to what issues are given to the jury in the first place.

This result is also consistent with Rule 39(c), which allows a trial by jury, even where not available as of right, when both parties consent. As the district judge correctly observed, failure to object is treated as consent: "If one party demands a jury, the other party does not object, and the court orders trial to a jury, this will be regarded as trial by consent. If there is trial to a jury by consent, the verdict has the same effect as if trial by jury had been a matter of right and cannot be treated as advisory only." *Modine*, 14 USPQ2d at 1215 (quoting 9 C. Wright & A. Miller, *Federal Practice and Procedures* § 2333 (1971)).

dence" that enhanced damages were not warranted, was inconsistent with the verdict that willful infringement had been shown by "clear and convincing evidence." Far from ignoring the jury's verdict, Judge Jensen's opinion demonstrated that he carefully considered the finding of willful infringement in light of the deterrent function of enhanced damages in reaching his determination that enhanced damages were not appropriate to this particular case. Modine has utterly failed to demonstrate that this determination was an abuse of discretion.[3]

With regard to Modine's appeal of the denial of its motion for attorney fees, a trial court has the authority to award attorney fees in patent litigation to the prevailing party "in exceptional cases." 35 U.S.C. § 285 (1988). An express finding of willful infringement is a sufficient basis for classifying a case as "exceptional," and indeed, when a trial court denies attorney fees in spite of a finding of willful infringement, the court must explain why the case is *not* "exceptional" within the meaning of the statute. *S.C. Johnson & Son, Inc. v. Carter-Wallace, Inc.*, 781 F.2d 198, 201, 228 USPQ 367, 369 (Fed. Cir. 1986). Nevertheless, the decision whether or not to award fees is still committed to the discretion of the trial judge, and "[e]ven an exceptional case does not require in all circumstances the award of attorney fees." *Id.* at 201, 228 USPQ at 369.

Modine argues that the district court abused its discretion by failing to act on the jury's finding of willful infringement. However, consistent with our statement in *S.C. Johnson* that "[t]he trial judge is in the best position to weigh considerations such as the closeness of the case, the tactics of counsel, the conduct of the

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[3] Modine also argues that the trial judge erred in not considering any form of enhanced damages less than treble damages. This contention is unpersuasive for three reasons: First, Modine itself specifically requested treble damages in its motion, so it is natural that the opinion should discuss trebling. Secondly, the fact that the court's opinion focuses upon treble damages does not necessarily mean that the judge failed to *consider* lesser multiples of damages. Finally, Modine's brief in support of its motion for increased damages specifically advised the court that willfulness could justify damages of *up to* three times lost profits or reasonable royalty. Joint Appendix at 966.

parties, and any other factors that may contribute to a fair allocation of the burdens of ligation [sic] as between winner and loser," *Id.* at 201, 228 USPQ at 369, Judge Jensen expressly articulated the basis of his determination that this case, though "exceptional" under section 285, does not justify an award of attorney fees. *Modine*, 14 USPQ2d at 1221 . This explanation was both reasonable and specifically expressed, and Modine's contention that it amounts to an abuse of discretion is completely without foundation.

CONCLUSION

The judgment of the district court and its rulings on post-trial motions are affirmed.

AFFIRMED

United States Court of Appeals
for the Federal Circuit

90-1204, 1210

MODINE MANUFACTURING COMPANY,
Plaintiff/Cross-Appellant,

v.

THE ALLEN GROUP, INC., d/b/a
THE G & O MANUFACTURING COMPANY,
Defendant-Appellant.

JUDGMENT

On Appeal from the United States District Court for the
Northern District of California
in Case No(s). 85-6946

This CAUSE having been heard and considered, it is ORDERED and ADJUDGED:

AFFIRMED.

ENTERED BY ORDER OF THE
COURT

FRANCIS X. GINDHART
Francis X. Gindhart, Clerk

DATED OCT. 22, 1990

ISSUED AS A MANDATE: December 26, 1990

Appendix B

United States Court of Appeals for the Federal Circuit

90-1204

MODINE MANUFACTURING COMPANY,
Plaintiff-Appellee,

v.

THE ALLEN GROUP, INC., d/b/a
THE G & O MANUFACTURING COMPANY,
Defendant-Appellant.

ORDER

Before Markey, Circuit Judge, Miller, Senior Circuit Judge, and Michel, Circuit Judge.

A petition for rehearing having been filed in this case, and a response thereto having been invited by the court and filed,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for rehearing be, and the same hereby is, denied.

The mandate will issued [sic] on December 26, 1990.

FOR THE COURT,

Dated: December 17, 1990

FRANCIS X. GINDHART
Francis X. Gindhart
Clerk

Appendix C

United States District Court

Northern District of California

MODINE MANUFACTURING CO.,
Plaintiff,

v.

THE ALLEN GROUP, INC., d/b/a
THE G & O MANUFACTURING CO.,
Defendant.

C-85-6946-DLJ

ORDER

On August 24, 1989, this Court heard defendant's motion for judgment notwithstanding the verdict ("JNOV") or new trial on liability and damages, and plaintiff's motion for increased damages, attorneys' fees, and prejudgment interest. Michael J. Lennon, Charles R. Ragan, Allan N. Littman, John M. Grenfell, Paul H. Heller, Thomas Hickey, and John Horsley appeared for defendant. Richard J. Hoskins, George M. Schwab, Lee F. Grossman, and Walter E. Pavlick appeared for plaintiff.

For the following reasons, this Court: (1) DENIES defendant's motion for JNOV; (2) GRANTS defendant's motion for new trial, but only on the issue of damages and only on the condition that a remittitur is not accepted; (3) DENIES plaintiff's motion for increased damages and attorneys' fees; and (4) GRANTS plaintiff's motion for prejudgment interest.

I. INTRODUCTION

On July 16, 1985, the United States Patent and Trademark Office issued patent number 4,529,034 ("the '034 patent"), for vehicle radiators, which covered construction of tube-to-header joints in a radiator by means of welding on the water side of the joint and soldering on the air side of the joint. Modine, the owner of the patent, manufactured and sold a "Beta-Weld" radiator based on this patent. On September 13, 1985, Modine filed suit

against G & O, a division of the Allen Group, claiming that G & O infringed its patent by making and selling its "Ultra-Fused" radiator and that the infringement was willful.

The trial commenced on March 13, 1989, with separate liability and damages phases. At the liability phase, the jury was presented with two core issues: (1) whether G & O proved by clear and convincing evidence that Modine's patent is invalid; and (2) if the patent is valid, whether Modine proved by clear and convincing evidence that G & O's infringement was willful. General and special verdicts on these issues were presented to the jury.

On April 21, 1989, after a six-week trial on liability, the jury returned special verdicts finding the patent valid and enforceable. The jury found that G & O had failed to prove by clear and convincing evidence: (1) that each claim of the '034 patent was anticipated by a single piece of prior art; (2) that the subject matter of the '034 patent, taken as a whole, would have been obvious to a person of ordinary skill in the art at the time the patent was made; (3) that Modine's inventor, Phil Saperstein, knew he was not the inventor of all the claims of the patent and that he intended to deceive the Patent Office when he signed the original oath as sole inventor and when he obtained the Certificate of Correction; (4) that Modine offered to sell the radiator described in the claim of the patent more than one year before it applied for the patent; and (5) that during the prosecution of the patent, Modine's agents intentionally or recklessly misrepresented, or intentionally or recklessly failed to disclose, to the Patent Examiner any information known to be material regarding the patent in suit. The jury further found that Modine had proved by clear and convincing evidence that G & O's infringement of the '034 patent was willful.

On May 8, 1989, at the conclusion of the damages phase of the trial, the jury returned special verdicts finding that Modine had proved by a preponderance of the evidence: (1) that it would have sold 95 percent of the infringing G & O radiators, which were sold by G & O after the '034 patent was issued; (2) that G & O is to compensate Modine for lost profits in the amount of $54,864,730; and (3) that a royalty rate of 28 percent is to be assessed against

G & O manufacturing as a reasonable royalty during the period of infringement.

On June 15, 1989, defendant's filed a motion for JNOV or, alternatively, a motion for a new trial, on grounds that the patent is invalid and unenforceable. Defendant argues the patent is invalid because Modine's invention was obvious, because it was offered for sale more than one year before the patent application, and because Modine engaged in inequitable conduct before the Patent Office. Defendant argues the patent is unenforceable because the jury's finding of willfulness is not supported by substantial evidence. In addition, defendant asks this Court to set aside the total damage award of $55,634,153 on grounds that it is speculative and grossly excessive.

On June 6, 1989, plaintiff filed a motion for increased damages, attorneys' fees, and prejudgment interest. On August 22, 1989, plaintiff filed a motion for immediate entry of judgment. This Court entered judgment under seal on August 28, 1989, but stayed execution of the judgment.

II. STANDARD OF REVIEW

A. JNOV Motion

A JNOV is proper if "the evidence permits only one reasonable conclusion as to the verdict.... It is improper if reasonable minds could differ over the verdict." *Sjolund v. Musland*, 847 F.2d 1573, 1577 (Fed. Cir. 1988). In considering a motion for JNOV, the trial court must: (1) consider all evidence presented at trial; (2) in a light most favorable to the nonmoving party; (3) draw all reasonable inferences in favor of the nonmoving party; (4) without determining the credibility of witnesses; and (5) without substituting its choice for that of the jury as between conflicting evidence. *Verdegaal Bros. Inc. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). The trial court must adhere to the verdict of the jury unless, after applying these constraints, it is firmly convinced that reasonable persons could not have reached the verdict returned by the jury. *Perkin-Elmer*

Corp. v. Computervision Corp., 732 F.2d 888, 893 (Fed. Cir. 1984).

B. New Trial Motion

If there has been sufficient evidence, as described above, presented at trial to create an issue for the jury to decide, the trial court may not grant a JNOV. However, the existence of evidence sufficient to deny a JNOV motion does not prevent the court from granting a new trial, "if the verdict is contrary to the clear weight of the evidence, or is based upon evidence which is false, or to prevent, in the sound discretion of the trial judge, a miscarriage of justice." *Richardson v. Suzuki Motor Co., Ltd.*, 868 F.2d 1226, 1245 (Fed. Cir. 1989) (quoting *Hanson v. Shell Oil Co.*, 541 F.2d 1352, 1359 (9th Cir. 1976), *cert. denied*, 429 U.S. 1074 (1977)).

Although the judge may weigh the evidence and assess the credibility of witnesses, and need not view the evidence in a light most favorable to the moving party, "a decent respect for the collective wisdom of the jury, and for the function entrusted to it in our system, certainly suggests that in most cases the judge should accept the findings of the jury, regardless of his own doubts in the matter." *Landes Constr. Co., Inc. v. Royal Bank of Canada*, 833 F.2d 1365, 1371 (9th Cir. 1987) (quoting 11 C. Wright & A. Miller, *Federal Practice and Procedure* § 2806 at 48-49 (1973)). If, on the other hand, having given full respect to the jury's findings and reviewed the entire evidence, the judge "is left with the definite and firm conviction that a mistake has been committed," a new trial should be granted. *Id.* at 1372 (quoting 11 C. Wright & A. Miller, *supra*, § 2806 at 48-49).

III. DEFENDANT'S MOTION FOR JNOV OR NEW TRIAL ON LIABILITY

A. Obviousness

On April 21, 1989, the jury returned a special verdict on the issue of obviousness and found that G & O had failed to prove by clear and convincing evidence that the subject matter of the '034 patent, taken as a whole, would have been obvious to a person of ordinary skill in the art at the time the patent was made.

G & O contends that it is entitled to a JNOV or new trial on the issue of obviousness. Urging this Court to avoid taking a restrictive view of what constitutes relevant prior art, *Graham v. John Deere Co.*, 383 U.S. 1 (1966), G & O argues it has produced evidence of specific prior art, within the relevant field of art, which renders Modine's patent obvious and therefore invalid. This evidence includes brazed or welded aluminum automotive radiators, heat exchangers used in nuclear plants, oil coolers and filler necks that are welded on one side and soldered on the other, and repair techniques used to seal leaks in tube-to-header joints in heat exchangers. G & O further argues that the secondary considerations of "long felt need" and "commercial success," supported by evidence introduced by Modine, do not overcome the obviousness of Modine's patent. *Newell Companies Inc. v. Kenney Mfg. Co.*, 864 F.2d 757 (Fed. Cir. 1988).

Modine argues in response that G & O's entire discussion of obviousness is nothing more than a selection of certain evidence and a reargument of its significance, in isolation from other, contradictory evidence. Modine complains that G & O is asking the Court to review *de novo* an issue as to which it failed to sustain its burden of proof by clear and convincing evidence at trial.

Modine relies on several arguments to rebut G & O's claim that the following categories of prior art are relevant and render the patent obvious. First, Modine contends that the testimony provided by Mr. Weltman on aluminum heat exchangers was uncorroborated, obviously not believed by the jury, and cannot provide the basis for a JNOV because it calls upon the Court to make an impermissible credibility assessment. Second, Modine contends that the evidence at trial established that one involved in developing a stronger heavy-duty truck radiator would not reasonably look to heat exchangers in nuclear reactors for relevant solutions, given the differences in materials used, financial constraints, types of heat exchangers manufactured, and safety considerations. Third, Modine contends that because G & O presented no proof that the oil coolers in question were sold in the United States, they cannot be considered prior art, as G & O itself acknowledged in an *in limine motion*. Fourth, Modine contends that filler necks

are not relevant prior art because they are significantly different from the Beta-Weld radiators produced by Modine.

Modine also contends that G & O's argument on long felt need and commercial success misinterprets the law. Modine argues that the objective considerations, or secondary considerations, must be considered in all cases regardless of the evidence of prior art presented. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983).

Modine further contends that G & O's argument avoids addressing the abundant evidence on these points. Modine notes that the record amply supports: (1) the long felt need in the industry for a highly durable and dependable radiator, with a life span of 50,000 to 100,000 miles; (2) the commercial success of the Modine Beta-Weld radiator and the G & O Ultra-Fused radiator; and (3) the nexus between the commercial success of the Beta-Weld radiator and the meeting of the long felt need. Modine adds that the evidence of copying, unexpected results, skepticism about the invention, and laudatory statements by G & O, all objective indicia of nonobviousness which G & O chooses to ignore, strongly suggests that the invention was not obvious.

Based on *Stratoflex*, this Court agrees with plaintiff that secondary considerations must, when present, be considered with all the evidence in the determination of obviousness, and not just when a doubt remains after reviewing the prior art. 713 F.2d at 1538-39.

On the other hand, this Court agrees with defendant that restricting the scope of the applicable prior art to the heavy truck industry or to copper/brass welding and soldering is not justified by the case law and the scientific context of the invention. The Court further agrees that the relevant prior art includes aluminum radiators, heat exchangers in the nuclear industry, oil coolers, filler necks, and repair techniques. However, in the opinion of the Court this prior art simply defines the relevant field of inquiry and leaves open the question of whether any particular piece of prior art teaches or suggests the invention.

Considering the relevant field of prior art and all objective evidence in a light most favorable to Modine, drawing all reason-

able inferences in favor of Modine, and abstaining from substituting judicial judgment for that of the jury regarding conflicting evidence, this Court is convinced that reasonable jurors could have concluded that G & O failed to present clear and convincing evidence of obviousness. Accordingly, G & O's motion for JNOV on the issue of obviousness is DENIED. G & O's motion for a new trial is also DENIED on grounds that the verdict is not contrary to the clear weight of evidence.

A. On Sale

The jury also returned a special verdict regarding the on sale issue and found that G & O had failed to prove by clear and convincing evidence that Modine placed the radiator described in the claim of the patent on sale more than one year before it applied for the patent.

G & O contends that the '034 patent is invalid because Modine placed its Ferrofuse stainless steel radiator, which used tube-to-header joints welded on one side with epoxy sealant on the other side, "on sale" to the Ford Motor Company in the summer of 1977. Specifically, G & O maintains that as part of a radiator design contest for Ford's 1980 model truck program, Modine submitted a proposed copper/brass radiator after: (1) price guidelines were internally established by Modine; (2) Modine had given Ford estimated prices; (3) Modine had proposed an initial delivery of 40 radiators in the first month; (4) Ford had asked for a firm proposal; and (5) Modine had provided Ford with test data for three field-tested stainless steel radiators repaired with epoxy. G & O concludes that this evidence demonstrates the radiators were offered for sale to Ford, were in a sufficiently tangible form to fulfill their intended purpose, and were therefore "reduced to practice." *General Electric Co. v. United States*, 654 F.2d 55, 62 (Ct. Cl. 1981).

Modine argues that the stainless steel radiator was not on sale because Modine never developed it to a stage where it would work or could be considered an acceptable radiator. *UMC Electronics Co. v. United States*, 816 F.2d 647, 656 (Fed. Cir. 1987). Modine maintains that the project was a failure because it could never get a leak-tight weld and, when Modine tried repairing leaks with

epoxy, the epoxy delaminated and would not adhere to the stainless steel.

In addition, Modine argues that there was no sale to Ford because Modine proposed only to sell conventional soldered copper/brass radiators. The stainless steel concept was appended to the proposal as a possible alternate design, but this represented merely a research idea. Indeed, the stainless steel project, which disappeared when Ford granted Modine a contract for the conventional soldered copper/brass radiator, never passed any level of Ford Engineering's three test levels, never received a Ford Engineering release, was never presented to Ford Purchasing for a release, and thus never reached the stage of order solicitation by Ford to Modine. Modine further notes that the "price and cost" information in the proposal only suggested ballpark costs, and did not constitute a quoted selling price, because, as testimony at trial revealed, "price and costs are one and the same as far as Ford is concerned."

Considering this evidence in a light most favorable to Modine, drawing all reasonable inferences favorable to Modine, and without making any credibility determinations, this Court is convinced that reasonable jurors could have found in light of the evidence that G & O failed to prove its "on-sale" claim by clear and convincing evidence. Accordingly, G & O's motion for JNOV regarding the on sale issue is DENIED. G & O's motion for a new trial is also DENIED on grounds that the verdict is not contrary to the clear weight of the evidence. Having weighed the evidence and assessed the credibility of witnesses, this Court is not left with the definite and firm conviction that a mistake has been committed.

B. Inequitable Conduct

The jury also returned a special verdict on the issue of inequitable conduct and found that G & O had failed to prove by clear and convincing evidence that during the prosecution of the patent, Modine's agents intentionally or recklessly misrepresented, or intentionally or recklessly failed to disclose, to the Patent Examiner any information known to be material regarding the patent in suit.

As an initial matter, G & O argues that a JNOV or new trial is warranted because the jury was not properly instructed with respect to the state of mind required for a finding of inequitable conduct under *Kingsdown Medical Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867 (Fed. Cir. 1988) (en banc) and *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 882 F.2d 867 (Fed. Cir. 1989). Pursuant to its reading of *Kingsdown*, the Court instructed the jury that in order to find inequitable conduct the jury must find that the conduct at issue was carried out intentionally or recklessly.

In *Kingsdown*, the court considered the issue of the requisite state of mind for inequitable conduct and held that

> a finding that particular conduct amounts to 'gross negligence' does not of itself justify an inference of intent to deceive; the involved conduct, viewed in light of all the evidence, including evidence indicative of good faith, must indicate sufficient culpability to require a finding of intent to deceive.

863 F.2d at 876. It is apparent to this Court that *Kingsdown* eliminates gross negligence as a sufficiently culpable state of mind to support a finding of inequitable conduct. To the extent that prior law held a finding of gross negligence sufficient to support a finding of inequitable conduct, that law is reversed by *Kingsdown*. After *Kingsdown*, a person prosecuting a patent application, owing a duty of candor to the Patent Office, who is grossly negligent in misrepresenting or omitting to disclose a material fact to the Patent Office is not guilty of inequitable conduct. Culpable conduct must be accompanied by a state of mind, on the continuum from accident to intent, that is higher than gross negligence. In the opinion of this Court, *Kingsdown* does not limit that state of mind to a specific intent to deceive, but rather reaches a state of mind that is equivalent to intentional conduct by recognizing that conduct which indicates "sufficient culpability to require a finding of intent to deceive" may support a finding of inequitable conduct. In traditional analysis, recklessness is seen as the equivalent of intent where an equivalent is recognized. This Court therefore concludes that after *Kingsdown* the requisite state of

mind is either intent or recklessness, and that gross negligence is not sufficient.

The Court rejects defendant's position that gross negligence survives *Kingsdown* and *Hewlett-Packard* as a sufficient mental state for inequitable conduct. Acknowledging that "gross negligence" covers a wide range of culpable conduct, the court in *Hewlett-Packard* opined that although circumstantial evidence of gross negligence may, based on the totality of circumstance, permit an inference of intent, inequitable conduct ultimately requires a finding of intent to mislead or deceive. Thus, contrary to defendant's contention, *Hewlett-Packard* does not require this Court to alter its reading of *Kingsdown*. Like *Kingsdown,* the court in *Hewlett-Packard* makes clear that something more than a finding of gross negligence is required for inequitable conduct. This Court concludes that at minimum a finding of recklessness is required.

Next, G & O argues that although it would be entitled to a JNOV or new trial on the issue of inequitable conduct, the jury verdict is only advisory and the issue of inequitable conduct is for the Court to decide. This Court expressed its view at a hearing on April 25, 1989 that G & O is bound by the jury's verdict because it failed to object to giving a nonadvisory verdict to the jury. G & O maintains this view is incorrect, arguing that it has contended throughout this litigation that the issue of inequitable conduct is exclusively for the Court to decide.

Although G & O did initially object to the jury determining the ultimate legal conclusion of inequitable conduct, G & O conceded that the factual underpinnings must be decided by the jury. Additionally, when given its last opportunity to object to the jury instructions and special verdict forms at the final conference on jury instructions, G & O only objected to a portion of the instruction on willful infringement. Significantly, G & O did not object to the actual submission of inequitable conduct to the jury. As two noted commentators make clear, G & O's failure to object precludes them from arguing now that the verdict was merely advisory and not binding:

> If one party demands a jury, the other party does not object, and the court orders trial to a jury, this will be regarded as trial by consent. If there is trial to a jury by consent, the verdict has the same effect as if trial by the jury had been a matter of right and cannot be treated as advisory only.

9 C. Wright & A. Miller, *Federal Practice and Procedure*, § 2333.

Defendant now asks this Court to conduct a bench trial on the issue of inequitable conduct by reviewing the trial evidence *de novo* and by treating the jury verdict as merely advisory. Assuming the Court has the power to decide the factual and legal issues related to inequitable conduct, even though other issues are contemporaneously submitted to a jury, such an exercise of power is not appropriate here. In this case, the issue of inequitable conduct was in fact submitted to the jury, and the jury did make factual findings that G & O failed to establish by clear and convincing evidence the materiality and intent thresholds necessary for inequitable conduct.

This Court therefore reviews the jury's findings in the context of motions for JNOV and for new trial, not *de novo*, and will accept the jury verdict unless the Court finds that reasonable jurors could not have concluded that G & O failed to overcome that burden. *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 893 (Fed. Cir. 1984).

The inequitable conduct of which G & O complains relates to the use of the sealant epoxy on the air side of a welded tube-to-header joint in a radiator. G & O argues that the invention includes epoxy sealant embodiments and that Mr. Saperstein's failure to disclose the epoxy work of others at Modine constitutes a failure to disclose material prior art. Specifically, G & O argues: (1) that when filing his patent application and signing an oath stating that he was the sole and original inventor of what was claimed in the application, Mr. Saperstein failed to disclose that Robert Miller and Russell Awe of Modine had already conceived of the epoxy sealant process in the Ferrofuse project; (2) that during a July 1984 interview with the Patent Examiner, Mr. Saperstein stated that epoxy flooding the opposite side of the weld was new, in response to the Examiner's concern that the use of

sealant coating rendered the claims obvious; and (3) that when he signed the application for the patent and for the Certificate of Correction, Mr. Saperstein failed to disclose that he did not invent the epoxy embodiment.

Apparently conceding the materiality of the withheld information, Modine argues that Mr. Saperstein lacked the requisite deceptive intent. First, in signing the original oath of invention, he believed he was signing a patent application for the Beta-Weld, which was his invention, and did not consider Miller's work to be an invention because it did not work. Therefore, Miller's work did not warrant disclosure to the Examiner. Second, in discussions with the Patent Office, epoxy only arose in connection with an aluminum radiator developed after Mr. Saperstein filed the application, and not in connection with the stainless steel radiators worked on before Mr. Saperstein joined Modine. Third, Mr. Saperstein had no reason to deceive the Patent Office because the patent had been assigned to Modine and not to him individually. Therefore, his name on the patent was not connected with internal promotions or compensation.

Modine concludes that, where the defendant has the burden of proving deceptive intent by clear and convincing evidence and the jury finds that it failed to do so, the Court should not extend the doctrine of inequitable conduct to encompass any failure, on the part of the originally named inventor, to disclose internal research done pursuant to the omitted co-inventor's invention.

This Court may enter JNOV only if it is firmly convinced that reasonable persons could not have reached the verdict that was reached. Furthermore, this Court must view the evidence and all reasonable inferences from it in a light favorable to Modine. Given these standards, this Court DENIES defendant's motion for JNOV on grounds that reasonable jurors could have concluded, in light of the evidence, that G & O failed to establish by clear and convincing evidence that those who prosecuted the patent for Modine intentionally or recklessly misrepresented or failed to disclose material information regarding the patent to the Patent Examiner.

This Court also DENIES defendant's motion for a new trial on grounds that the verdict is not against the clear weight of the evidence and that a new trial is not necessary to prevent a miscarriage of justice. Although the credibility of Mr. Saperstein's testimony was clearly at issue, particularly with respect to whether or not he was aware that the actual patent application covered not only his "Beta-Weld" embodiment of the tube-to-header joint but also Mr. Miller's and Mr. Awe's epoxy embodiment of such joints, and with respect to his failure to disclose such a material fact to the Examiner, the jury did have more than adequate opportunity to consider both sides of the issue. A decent respect for the collective wisdom of the jury warrants deference to their finding. This Court cannot confidently conclude that a mistake has been committed and that a new trial is therefore appropriate.

C. Willful Infringement

Lastly, the jury returned a special verdict during the trial's liability phase on the issue of willful infringement and found that Modine had proved by clear and convincing evidence that G & O's infringement of the '034 patent was willful.

G & O contends it did not willfully infringe the '034 patent based on the legal opinions it solicited from competent outside patent counsel. These opinions arguably provided G & O with a reasonable basis to believe in good faith that Modine's patent was invalid or not infringed. *Paper Converting Machine Co. v. Magna-Graphics Corp.*, 745 F.2d 11, 20 (Fed. Cir. 1984). G & O further contends that its efforts to obtain more than one legal opinion evidences that it exercised due care to determine whether or not it was infringing the '034 patent.

Modine responds that the success of the Beta-Weld and the possibility of losing some of its biggest customers to Modine put enormous pressure on G & O to manufacture, as G & O's Richard Crook acknowledged at trial, a competing product of equal performance. Modine contends that in an effort to remain competitive, G & O obtained a Beta-Weld radiator and intentionally copied it. G & O's letters to Modine denying infringement and its

claim of reliance on outside legal opinions are thus merely a sham designed to conceal the willfulness of the infringement.

Considering this evidence in a light most favorable to Modine, drawing all reasonable inferences from testimony and exhibits in its favor, and deferring to the verdict where the evidence conflicts, this Court finds that reasonable minds could differ over the verdict and therefore DENIES defendant's motion for JNOV. This conclusion is especially warranted in light of the Court's instruction to the jury that they must look to the totality of the circumstances in determining willfulness and that reliance upon an attorney's advice does not alone dictate a finding that the infringement was not willful. The Court also DENIES defendant's motion for a new trial on grounds that the verdict is not contrary to the clear weight of evidence.

I. PLAINTIFF'S MOTION FOR INCREASED DAMAGES AND DEFENDANT'S MOTION FOR JNOV OR NEW TRIAL ON DAMAGES

On May 8, 1989, the jury returned special verdicts awarding Modine $54,864,730 in lost profits on 95 percent of lost sales, and a royalty rate of 28 percent on the remaining five percent of G & O sales. Modine now moves for increased damages, and G & O moves for JNOV or new trial on the issue of damages.

A. Motion for Increased Damages

In its motion for increased damages, Modine asks this Court to treble the jury's damage award in order to compensate them fully for the egregious and willful infringement of their patent and to deter future willful conduct by G & O. Because the issue of patentability was close and litigated in good faith, *see Yodor Bros., Inc. v. California-Florida Plant Corp.*, 537 F.2d 1347, 1383 (5th Cir. 1976), *cert. denied*, 429 U.S. 1094 (1977), this Court exercises its complete discretion and DENIES plaintiff's motion for increased damages, despite the finding of willful infringement. *See Rite-Hite Corp. v. Kelley Co., Inc.* 819 F.2d 1120, 1126 (Fed. Cir. 1987); *S.C. Johnson & Son, Inc. v. Carter-Wallace, Inc.*, 781 F.2d 198, 201-02 (Fed. Cir. 1986), *on remand*, 231 U.S.P.Q. 668, 670 (S.D.N.Y. 1986) (denying increased damages, despite find-

ing or willful infringement, where defendant raised a substantial challenge to plaintiff's patent claims).

This Court finds that a contrary conclusion would thwart efforts to challenge patents believed in good faith to be invalid. *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565, 1581 (Fed. Cir. 1986), *cert. denied*, 107 S. Ct. 882 (1987). As the cited cases recognize, treble damage awards, which were created by statute, do not automatically follow upon a finding of willful infringement. It is apparent to this Court that treble damages represent the functional equivalent of punitive damages and that a court deciding this issue should consider the conduct of the willful infringer in light of the need for punishment and the need for deterrence.

In this case Modine's request for an additional $100 million dollars by trebling the jury's damage award is simply not justified on punishment or deterrence grounds by the evidence. This conclusion holds even if the Court were to accept Modine's argument that this issue is simply one of fixing the appropriate level of compensation damages rather than one implicating the award of punitive damages. The willfulness issue in this case is sufficiently close on the evidence that the decision to award treble damages cannot be based on any rational view of the evidence and could provide misplaced incentives in litigating the merits of the willfulness issue in other patent infringement cases.

B. Motion for JNOV on Damages

On May 8, 1989, the jury returned special verdicts that awarded Modine approximately $56 million in damages based on three findings. First, the jury determined that Modine would have sold 95 percent of the infringing G & O radiators in the absence of patent infringement. Second, the jury found that Modine is entitled to $54,864,730 in lost profits. Third, the jury fixed the reasonable royalty rate, to which Modine is entitled on any infringing units sold by G & O which would not have been sold by Modine, at 28 percent. The jury therefore found that Modine is entitled to 28 percent royalties on the five percent of G & O sales that Modine would not have accounted for in the absence of patent infringement.

The special verdicts indicate that the jury adopted Modine's theories on lost profits and royalty rates with only slight modification.

Modine's theory of lost profits is based on two "streams." Under stream one, Modine seeks lost profits related to the sales of Beta-Weld radiators during the period of infringement, July 1985 to May 1989, based on the contention that it would have been able to charge higher prices during that time but for the presence of G & O's infringing product in the market. Assuming that Modine could have sold each radiator unit at a price markup of 21.9 percent during the relevant period, stream one lost profits equal $27.4 million.

Under stream two, Modine seeks lost profits related to sales of G & O Ultra-Fused radiators from July 1985 to May 1989, based on its contention that Modine would have accounted for those sales but for the presence of the infringing G & O product in the market. Assuming that Modine would have accounted for 100 percent of the G & O Ultra-Fused radiator sales and that the profit margin on these sales would have reflected the 21.9 percent price markup, stream two lost profits equal $28.9 million.

Modine arrives at its price increase figure of 21.9 percent by relying on two concepts. First, Modine contends that the presence of G & O in the radiator market caused a price "erosion." Modine presented expert testimony to show that the profit margins on the sale of its Beta-Weld radiators was depressed by 6.9 percent after the infringement, based on a statistical analysis that compared the profit margins on Modine's radiators before and after G & O radiators entered the market. Second, Modine contends that G & O's infringement denied Modine the opportunity to charge a price "premium." Modine offered the testimony of its president, Alex Simpson, that it would have increased its radiator price by 15 to 20 percent in the absence of competition from G & O.

Modine's theory of a reasonable royalty rate is based on the testimony of its licensing expert, Mr. Johnston. He presented three different techniques for computing a reasonable royalty, all of which yielded a royalty at or close to the 28 percent figure determined by the jury. Mr. Johnston based his royalty computa-

tions on the assumption that G & O earned an incremental or marginal profit of 32 percent on its sale of Ultra-Fused Radiators, and that G & O could have paid a royalty rate at or close to 28 percent, given the four percent average profit of G & O's entire product line in 1985.

G & O moves for a JNOV or a new trial on the jury's verdicts regarding damages on the grounds that the award is not supported by substantial evidence, is contrary to the evidence, and is a miscarriage of justice. G & O advances three arguments in support of its motion, all of which attack the assumptions underlying the lost profits and reasonable royalty theories put forward by Modine.

G & O first argues there is no evidence that Modine could have raised the price of the Beta-Weld by 21.9 percent but for the alleged infringement. G & O notes that Modine's only evidence supporting the 21.9 percent premium was the testimony of its president, which was not based on an analysis of conditions in the radiator or truck market, nor on the past experience of Modine or its competitors, nor on a written projection or any other documentary evidence. G & O contends that contrary evidence brought out at trial further undermines Modine's theory regarding a 21.9 percent premium: Modine introduced the Beta-Weld at essentially the same price as its soldered radiators, and Modine did not obtain a substantial premium for two other product improvements.

Modine counters that G & O's attack on its damage award overlooks several crucial bodies of relevant evidence that amply support the verdict. The Beta-Weld radiator increased the life and durability of heavy duty truck radiators, and therefore customers were willing to pay more for the enhanced value. The 21.9 percent price increase also amounted to far less than actual dollars saved in repair costs, and both fleet owners and truck purchasers were willing to pay a premium for eliminated repair and replacements costs. In addition, before the Ultra-Fused's entry into the market became a significant pricing factor one customer paid Modine a premium of 28 percent. Finally, an industry trade publication reported in May 1983 that the "Beta-Weld core at that time

would carry a premium of *only* a 10-12 percent premium over a convention core."

G & O's second argument in support of its motion for JNOV or new trial is that the overwhelming weight of evidence disproves Modine's claim that, given a price increase of 21.9 percent, they could have sold the same number of Beta-Weld radiators and also captured 95 percent of G & O's Ultra-Fused sales. Modine's claim suggests that no customer placing such an order, or as the jury found, no more than five percent of those customers, would have accepted an alternative to Modine's welded radiator, regardless of the hypothetical 21.9 percent price increase and regardless of other customer needs or preferences. G & O maintains that the jury's verdict ignores the contrary evidence that: (1) truck manufacturers base their purchase on a wide range of factors, including price, delivery, engineering capability, past relationships, and a preference for dual sources of supply; (2) many customers to whom G & O sold the Ultra-Fused had no existing business relationship with Modine, and yet Modine's expert assumed that such customers would shift orders for more than 67,000 radiators; and (3) customers had available for purchase several acceptable, noninfringing alternatives to the Beta-Weld and the Ultra-Fused.

Modine counters that the evidence at trial demonstrated that the heavy duty truck market was demanding a Beta-Weld type radiator because it solved a significant problem of tube-to-header joint erosion called "solder bloom" and the related problems of field repair costs and downtime caused by radiator failure at these joints. Modine notes that its heavy truck radiator sales went from 100 percent conventional soldered to 99 percent Beta-Weld from 1985 to 1988. Modine concludes that the Beta-Weld would have been, but for G & O's infringing radiator, the only radiator to satisfy those customers who had chosen to purchase the Ultra-Fused radiator. Modine reasons that this conclusion can be inferred simply from the fact that Modine and G & O were the only two suppliers selling the revolutionary welded and solder backfilled radiators during the relevant period.

Third, G & O argues that Modine presented no direct evidence regarding G & O's actual incremental or marginal profit. G & O reasons that the jury based its award of a 28 percent royalty solely

on Mr. Johnston's testimony, which fixed G & O's marginal profit at 32 percent based entirely on the marginal profit rate earned at the Modine plant which manufactured Beta-Welds in Pemberville, Ohio. G & O further criticizes Johnston's testimony for assuming that a licensee will sell an indefinite volume of his licensed product in addition to current volumes of his existing product, with the latter absorbing overhead. The problem, G & O argues, is that the licensee may sell the licensed product in place of his existing product, especially if the former is really superior, and will therefore have to use revenues from the licensed product to cover overhead as well as variable costs and the royalty. G & O argues that Mr. Johnston's calculations are inconsistent with such uses of licensed product revenues by the licensee, especially if the licensee's normal net profit is low to begin with. G & O also notes that the specific formula used by Mr. Johnston to arrive at the 28 percent royalty was rejected in *Smith Intl., Inc. v. Hughes Tool Co.*, 229 U.S.P.Q. 81, 93 (C.D. Cal. 1986), *vacated by stip.*, 839 F.2d 663 (Fed. Cir. 1988) (judgment vacated because case settled after appeal).

G & O argues that all probative evidence points to the conclusion that a reasonable royalty would be less than five percent. G & O urges this Court to adopt the approach suggested by Mr. Johnston and split the difference between Modine's and G & O's pretax profits in 1985, which would result in a royalty between 4.3 percent and 3.5 percent. G & O further notes that according to Mr. Johnston's testimony, the typical royalty is about five percent of the sales price.

Modine counters that the jury's 28 percent figure is supported by the evidence because the three different techniques use by its expert to compute a reasonable royalty each yielded a royalty figure at or close to 28 percent. Mr. Johnston arrived at a figure of 23.5 percent by assuming that the incremental profit would be shared equally, 28 percent by subtracting the expected net profit from the incremental profit, and 28 percent by using the analytical approach of *TWM Manufacturing Co. v. Dura Corp.*, 789 F.2d 895, 899 (Fed. Cir. 1986). Modine concludes that a review of reasonable royalty rates awarded in cases roughly similar to this

one demonstrates that the jury's 28 percent is in line with established precedent.

Modine adds that a lower royalty rate ignores the realities of the marketplace, ignores the extraordinary usefulness and unique commercial value of the Beta-Weld, and ignores its penetration of the market. Modine points out that, as a revolutionary product, the Beta-Weld would never be licensed in the real world, and the reasonable royalty figure arrived at in the hypothetical world should therefore be higher than the rates typically negotiated.

To recover lost profits, the patent owner must prove the cause and the amount of the loss as facts, without resorting to speculation. *Water Technologies Corp. v. Calco, Ltd.*, 850 F.2d 660, 671-73 (Fed. Cir. 1988). Although the amount of lost profits need not be proven with unerring precision, lost profits cannot be awarded based on speculation. *Bio-Rad Laboratories v. Nicolet Instrument Corp.*, 739 F.2d 604, 616 (Fed. Cir. 1984).

Where lost profits cannot be proved with reasonable certainty, a royalty measure of damages is appropriate. *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1078 (Fed. Cir. 1983). Although the calculation of lost profits is a fact-based analysis, the determination of a reasonable royalty, which rests on a legal fiction, occurs in a purely hypothetical setting. *Panduit Corp. v. Stahlin Bros. Fibre Works*, 575 F.2d 1152, 1158 (6th Cir. 1978). The determination of a reasonable royalty, however, like the lost profits calculation, must be based on evidence and not conjecture. 4 D. Chisum, *Patents* § 20.03[3][i] (1989).

In considering G & O's motion for JNOV, the Court must consider the evidence in a light most favorable to Modine and give Modine the benefit of all reasonable inferences. *Verdegaal Bros.*, 814 F.2d at 631. In light of this rigorous standard, the Court DENIES the motion for JNOV on the issue of lost profits and reasonable royalty rates.

Indulging Modine with every reasonable inference from the evidence, the Court concludes that there is sufficient evidence for the jury's verdict that, but for the competition of G & O's infringing product, Modine would have been able to charge a 21.9 percent premium on Beta-Weld sales. The jury presumably con-

cluded that the value added to the life and quality of the radiators warranted the 21.9 percent premium. Although Mr. Simpson's testimony supplied the only basis for the range of the price premium, he testified three times during the trial and was subjected to thorough cross examination. The jury had every opportunity to assess his judgment and measure his credibility. This Court cannot reassess Mr. Simpson's credibility or substitute its own judgment for that of the jury on a motion for JNOV.

The Court further concludes, by indulging every reasonable inference from the evidence, that the jury's award of lost profits on 95 percent of G & O sales, at a premium of 21.9 percent, was also supported by evidence sufficient to withstand a JNOV. The jury could have reasonably reached this conclusion on the evidence that Modine and G & O were the only two suppliers of a revolutionary radiator, the demand for which approached near inelastic levels.

Accordingly, this Court DENIES G & O's motion for JNOV on the issue of lost profits.

The Court also concludes that there is sufficient evidence for the jury's award of a 28 percent royalty on five percent of G & O sales. Considering the expert testimony in a light most favorable to Modine, drawing all reasonable inferences from the testimony and exhibits in its favor, and deferring to the verdict where the evidence conflicts, this Court finds that reasonable minds could differ over the verdict and therefore DENIES the motion for JNOV on the issue of a reasonable royalty.

C. Motion for New Trial on Damages

Although this Court finds that Modine presented sufficient evidence at trial to create an issue of damages for the jury to decide, the mere existence of sufficient evidence to withstand a JNOV motion does not prevent this Court from granting G & O a new trial on the issue of lost profits and a reasonable royalty. In the opinion of the Court, the jury's verdict that Modine could have realized a 21.9 percent price increase on all Beta-Weld sales and on 95 percent of G & O's sales, as well as a 28% royalty on the remaining five percent of G & O's sales, during the relevant

period of infringement is based on speculation, contrary to the clear weight of evidence, and a miscarriage of justice.

As G & O correctly notes, Mr. Simpson's testimony was the only evidence of the 21.9 percent premium offered by Modine. This testimony was not based on an analysis of radiator or truck market conditions, the past experience of Modine or its competitors, or any written projection or other documentary evidence. Mr. Simpson's informed opinion therefore relies on evidence which is itself based more or less on speculation.

Moreover, the clear weight of evidence fails to support this speculation. Although Modine was producing and selling the Beta-Weld during the prosecution of the patent application, the evidence shows that Modine introduced the Beta-Weld at essentially the same price as its soldered radiators and did not obtain any significant price increase. While there may be some merit to Modine's claim that customer skepticism depressed prices initially, this argument fails to convince the Court that such skepticism continued to depress prices up to July 1985, when G & O entered the market with the Ultra-Fused. This Court cannot accept Modine's claim that the price of the Beta-Weld would have jumped 21.9 percent overnight but for the Ultra-Fused's introduction. The evidence, rather, leads to the conclusion that the market would have continued from June to July 1985, as it continues, right now, without sky-rocketing prices.

The jury's award of a 28 percent royalty on the remaining five percent of G & O sales is also based on speculation and contrary to the clear weight of the evidence. As G & O correctly notes, Mr. Johnston's testimony was the only evidence of the 28 percent royalty rate offered by Modine. Mr. Johnston himself admits, however, that in 35 years of practice and more than 100 licensing negotiations, he has never negotiated a royalty higher than 15 percent. The evidentiary weight of Mr. Johnston's royalty computations are further diminished by the fact that all of his calculations are based on the unfounded and unsubstantiated assumption that G & O's incremental or marginal profit was 32 percent. Modine offered no evidence regarding G & O's incremental or marginal profit.

In contrast to this speculation, the evidence supports a conclusion that no rational licensee would agree to a royalty based on the incremental or marginal profit approach utilized by Mr. Johnston. Such an approach was expressly disapproved in *Georgia Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970), *modified sub. nom., Georgia-Pacific Corp. v. United States Plywood-Champion Papers, Inc.*, 446 F.2d 295 (2d Cir. 1971), *cert. denied*, 404 U.S. 295 (1971).

A new trial on damages is further warranted on grounds that the $55.6 million verdict is a miscarriage of justice. The award exceeds G & O's gross revenues from all sales of the Ultra-Fused radiators during the period of the alleged infringement. The award also exceeds of the cumulative profits for the last ten years of G & O's parent company, the Allen Group. It cannot, therefore, be justified as compensation for infringement under 35 U.S.C. section 284. Rather, the Court finds that the award, which transfers to Modine the full amount of all of G & O sales, is an unprecedented verdict and a miscarriage of justice. Although Modine is entitled to fair compensation, it is not entitled to a windfall.

Having given full respect to the jury's findings and reviewed the entire evidence concerning damages, this Court is of the firm conviction that the jury's award of $55.6 million in damages is excessive. Accordingly, this Court may either grant defendant's motion for a new trial on the issue of damages or deny the motion conditional upon Modine's acceptance of a remittitur. *Fenner v. Dependable Trucking Co., Inc.*, 716 F.2d 598, 603 (9th Cir. 1983) (citations omitted); see also *Linn v. United Plant Guard Workers of Amer., Local 114*, 383 U.S. 53, 65-66, 86 S. Ct. 657, 664 (1966). This Court chooses the latter course. Modine thus has the option of either submitting to a new trial on the damages issue or of accepting a lesser amount of damages which this Court considers justified. *Fenner*, 716 F.2d at 603.

This Court is of the opinion that the evidence presented in this case justifies an award of $14 million in damages. This amount is consistent with (1) a price increase by Modine of five percent on its Beta-Weld radiators, (2) sales by Modine of 50 percent of

G & O's Ultra-Fused radiator sales, and (3) a royalty rate of 15 percent on the remaining radiators sold by G & O.

For all the foregoing reasons, this Court GRANTS defendant's motion for a new trial on the issue of damages. However, a new trial limited to damages is granted only ON THE CONDITION that Modine does not accept a remittitur in the amount of $14 million.

II

PLAINTIFF'S MOTION FOR ATTORNEYS' FEES AND PREJUDGMENT INTEREST

A. Attorneys' Fees

This court has the authority to award reasonable attorney fees to the prevailing party in patent litigation, but such attorney fees may only be awarded "in exceptional cases." 35 U.S.C. § 285.

As a general rule, an express finding of willful infringement of a patent provides sufficient basis for finding exceptional circumstance within the meaning of the statute. When faced with such a finding, it is incumbent on the district court to explain why the case is not an "exceptional case" warranting an award of attorneys' fees under section 285. *S.C. Johnson & Son, Inc. v. Carter-Wallace, Inc.*, 781 F.2d 198, 200-201 (Fed. Cir. 1986). Significantly, "[e]ven an exceptional case does not require in all circumstances the award of attorney fees." *Id.* at 201.

Although the trial court retains broad discretion to award or deny attorneys' fees, "[t]he court's choice of discretionary ruling should be in furtherance of the policies of the laws that are being enforced, as informed by the court's familiarity with the matter in litigation and the interests of justice." *Id.* (citations omitted). In exercising its discretion, the trial court may weigh such considerations as "the closeness of the case, the tactics of counsel, the conduct of the parties, and any other factor that may contribute to a fair allocation of the burdens of litigation as between winner and loser." *Id.*

The jury's finding in this case of willful infringement by G & O makes this an exceptional case within the meaning of the statute and authorizes the court to grant Modine attorney fees. Modine contends that G & O's pretrial conduct and conduct during trial also mandates an attorney fee award. The Court finds this last argument unconvincing.

Despite the jury's finding of willful infringement, this Court, in exercising its broad discretion, DENIES plaintiff's motion for attorneys' fees on grounds that: (1) many substantial defenses were available to G & O because of the lengthy and contested nature of the patent's history; (2) G & O raised a substantial challenge to Modine's patent claims; (3) the law suit was conducted fairly, vigorously, and in good faith by both G & O and Modine; and (4) an award of fees would thwart efforts to challenge the validity of patents believed in good faith to be invalid.

B. Prejudgment Interest

Modine seeks prejudgment interest based on its cost of funds, compounded annually, applied to its damages as incurred during the period of the infringement. Specifically, Modine seeks interest in the amount of $9,611,133 effective August 1, 1989, and that further interest be awarded in the amount of 9.29 percent of the accumulated damages and interest from August 1, 1989, until the date that judgment is entered. Modine provides an alternative calculation based on the annual prime rate for comparison purposes, the prime rate being slightly greater than Modine's cost of funds.

Modine argues that the compensatory nature of prejudgment interest dictates that Modine's cost of funds be used to calculate the rate at which prejudgment interest is to be assessed. That is, Modine contends that a commercial interest rate should be utilized, rather than a statutory rate, to reflect actual compensation due to Modine under 35 U.S.C. section 284.

G & O contends that Modine is not entitled to any prejudgment interest. However, should the Court find otherwise, G & O argues that the Court (1) should award prejudgment interest on

reasonable royalty damages only, and (2) should award such interest not at the commercial rate proposed by Modine, but rather at the statutory rate of seven percent simple interest per annum. G & O contends that nothing more than seven percent interest on a reasonable royalty is necessary to place Modine in as good a position as it would have been in had G & O entered into a reasonably royalty agreement, because the total damage award of $55,634,135 exceeded G & O's gross revenues of $54,958,814 on all sales of the infringing radiator.

G & O's argument that prejudgment interest should be limited to reasonable royalty damages is wrong on the law. In *Gyromat Corp. Champion Spark Plug Co.*, 735 F.2d 549, 556 (Fed. Cir. 1984), the court made clear that prejudgment interest should ordinarily be awarded on both the lost profit and reasonable royalty portions of the damages award for patent infringement. Consequently, the sole question before this Court is whether prejudgment interest should be awarded at the statutory rate or at a commercial rate compounded annually.

In *Bio-Rad Laboratories*, the court acknowledged that "the rate of prejudgment interest and whether it should be compounded are matters left largely to the discretion of the district court." 807 F.2d at 969. As Modine correctly notes, however, in exercising its discretion the court must be guided by the purpose of prejudgment interest, which is to compensate the patent holder for its "forgone use of money [the royalty payments] between the time of the infringement and the date of the judgment." *Id.* (quoting *General Motors Corp. v. Devex Corp.*, 103 S. Ct. 2058, 2062 (1983)). The merits of the infringer's challenges to the patent or to an unduly high damage award are immaterial to the determination of prejudgment interest. *Bio-Rad Laboratories*, 807 F.2d at 969-70.

Based on the *Devex* and *Bio-Rad* decisions, this Court awards Modine prejudgment interest on all damages incurred during the period of the infringement at the compounded commercial rate, that is, Modine's cost of funds compounded annually.

III

CONCLUSION

For all of the foregoing reasons, this Court hereby ORDERS the following:

(1) Defendant's motion for JNOV is DENIED; (2) defendant's motion for new trial is GRANTED, but only on the issue of damages and only on the condition that plaintiff does not accept a remittitur in the amount of $14 million; (3) plaintiff's motion for increased damages and attorneys' fees is DENIED; and (4) plaintiff's motion for prejudgment interest is GRANTED.

Plaintiff is further ORDERED to inform this Court of its decision regarding the remittitur, and to submit a proposed form of judgment consistent with the terms of this Order, with twenty (20) days of the date of this Order. In the event it accepts the remittitur, plaintiff's proposed form of judgment should include an appropriate amount for damages and prejudgment interest.

IT IS SO ORDERED.

DATED: November 30, 1989.

D. LOWELL JENSEN

D. Lowell Jensen
United States District Judge

Appendix C

United States District Court
Northern District of California

MODINE MANUFACTURING COMPANY,
Plaintiff,

v.

THE ALLEN GROUP, INC., d/b/a
THE G & O MANUFACTURING CO.,
Defendant.

C-85-6946-DLJ

FINAL JUDGMENT

This action having come before the Court for a trial by jury, the issues having been tried and the jury having rendered its verdicts as to liability and damages, the Court having ruled on the post-trial motions of the parties, and the Court having offered plaintiff a Remittitur which has been accepted:

It is hereby ORDERED, ADJUDGED AND DECREED as follows:

1. United States Patent No. 4,529,034 is valid and enforceable; and it has been willfully infringed by defendant. The Court therefore ENTERS JUDGMENT in favor of plaintiff and against defendant on all issues presented in the First Amended Complaint and in the Counterclaim.

2. Plaintiff is entitled to damages in the amount of Fourteen Million Dollars ($14,000,000) as compensation for the infringement by defendant, plus prejudgment interest in the amount of $3,213,013.60, for a total award of $17,213,013.60.

3. Plaintiff's motion for increased damages, and plaintiff's motion for attorneys' fees, are DENIED.

4. Defendant THE ALLEN GROUP, INC., including each division, subsidiary or business unit thereof (including but not limited to THE G & O MANUFACTURING COMPANY), its successors and assigns in whole or in part, its officers, agents,

representatives, employees, servants, attorneys, and all persons in active concert or participation with them, are hereby permanently enjoined and restrained, during the full life of United States Patent No. 4,529,034, from engaging in any activities which infringe or would infringe one or more claims of said Patent, and are specifically enjoined from making radiators of the type represented by Plaintiff's Trial Exhibit 30. Plaintiff's Trial Exhibit 30 depicts the type of Ultra-Fused radiator commercial made prior to January 1989 in G & O's Jackson plant, and prior to May 1989 in G & O's New Haven plant, in which tube-to-header joints were welded on the liquid coolant side and had solder applied from the air side as a coating opposite each welded joint. THE ALLEN GROUP is directed to provide actual notice of this injunction to any successors or assigns, in whole or in part, of THE G & O MANUFACTURING COMPANY.

5. Plaintiff is awarded its costs, to be taxed by the Clerk of the Court.

6. No adjudication has been made in this case with respect to any issue of liability of THE ALLEN GROUP related to its so-called Ultra-Fused II radiator, in which sealant is applied from the coolant side of the tube-to-header joint.

7. The judgment entered under seal by this Court on August 28, 1989 is hereby vacated.

IT IS SO ORDERED.

DATED: January 19, 1990.

D. LOWELL JENSEN

D. Lowell Jensen
United States District Court

Appendix D

United States Patent [19]

Saperstein

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[54] **HEAT EXCHANGER HAVING A HEADER PLATE**

[75] Inventor: **Zalman P. Saperstein, Racine, Wis.**

[73] Assignee: **Modine Manufacturing Company, Racine, Wis.**

[21] Appl. No.: **287,217**

[22] Filed: **Jul. 27, 1981**

Related U.S. Application Data

[63] Continuation of Ser. No. 105,626, Dec. 20, 1979, abandoned.

[51] Int. Cl.³ **F28F 9/16**

[52] U.S. Cl. ..... **165/134 R**; 29/157.4; 165/173; 165/175; 165/178; 285/189; 285/286; 285/287

[58] Field of Search ..... 165/173, 175, 178, DIG. 9, 165/134 R; 285/137 R, 189, 286, 287; 29/157.4

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[11] **Patent Number: 4,529,034**

[45] **Date of Patent: Jul. 16, 1985**

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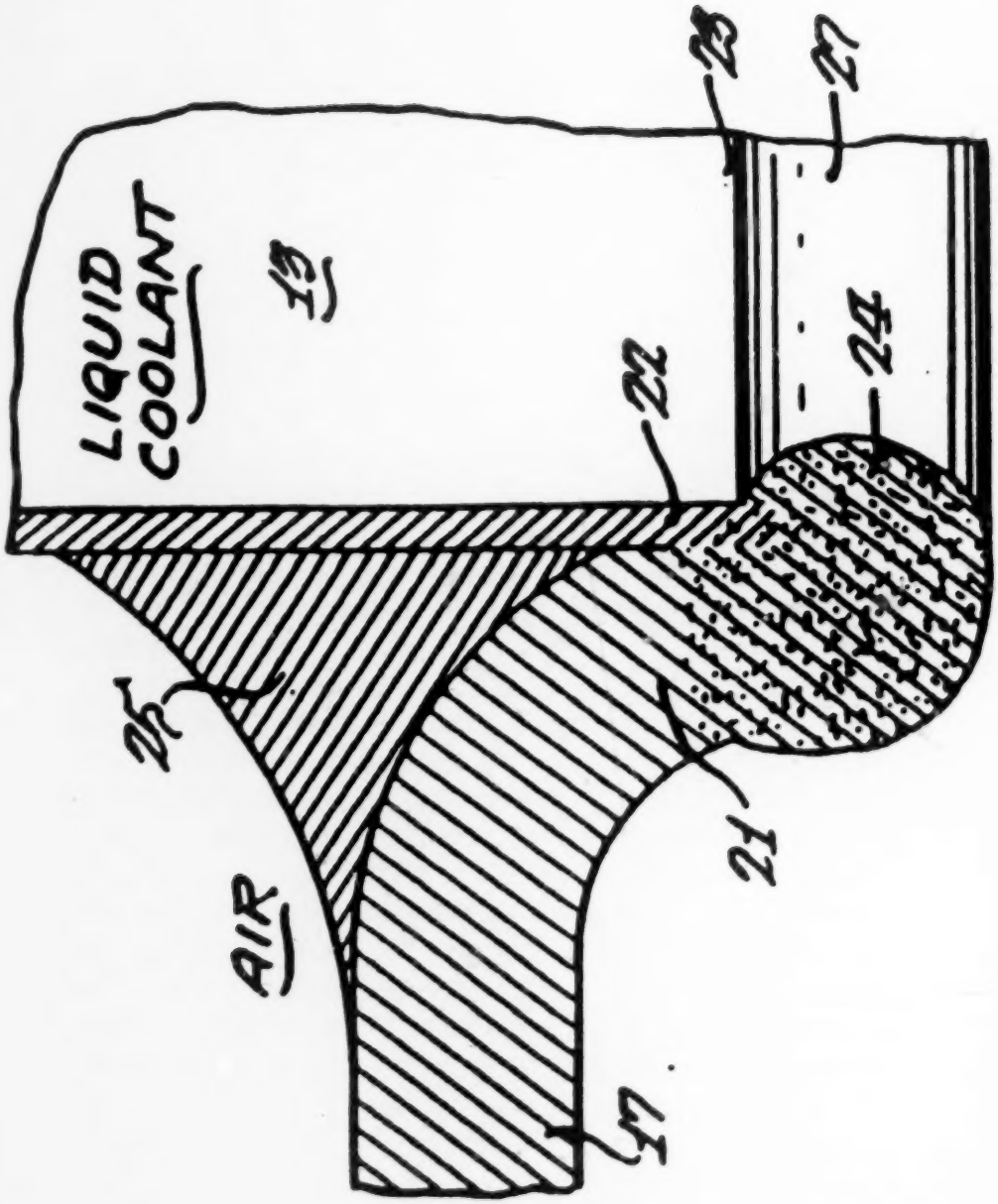
Primary Examiner—Sheldon J. Richter
Attorney, Agent, or Firm—Wood, Dalton, Phillips, Mason & Rowe

[57] **ABSTRACT**

A fluid-to-fluid such as a liquid-to-air heat exchanger and a method of making such a heat exchanger in which there is provided a header plate, a plurality of liquid coolant tubes each extending into a hole in the header plate, a primary load bearing joint subject to the formation of leakage openings in the joint joining each tube to the header plate at its tube opening, and a thin sealant sealing against leakage any leakage openings that may be present or that may occur.

6 Claims, 3 Drawing Figures


LIQUID COOLANT
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1

HEAT EXCHANGER HAVING A HEADER PLATE

This is a continuation of application Ser. No. 105.626 filed Dec. 20. 1979. now abandoned.

BACKGROUND OF THE INVENTION

In heat exchangers of the type considered herein there is usually provided a pair of spaced header plates between which extend spaced tubes for conveying a first fluid such as a liquid between spaced tanks of which the header plates are parts. A second fluid such as air is then forced over and between the tubes and usually in contact with serpentine fins for cooling the liquid flowing through the tubes. An automotive radiator is a good example of such an exemplary heat exchanger.

Many of these heat exchangers particularly where the headers and tubes are constructed of brass and the interconnecting fins of copper are deficient in strength because the joints are customarily solder and have poor creep and fatigue properties. This invention both in structure and method avoids these difficulties by providing a primary load bearing joint such as weld metal joining the tubes to the headers at their areas of contact or of close proximity and then a thin sealant sealing against leakage any small leakage openings such as cracks. fissures. pin holes or the like that may be present.

The most pertinent prior art of which I am aware are the following U.S. Pat. Nos. 2,270,864; 2,914,346; 3,078,551; 3,349,464; 3,496,629; 3,633,660; 3,689,941; 3,710,473; 3,750,747 and 3,763,536. Although many of these patents illustrate the problems of cracks, fissures and similar leaks in welded joints, none of them teach the solution to this problem of providing in the heat exchanger combination a thin sealant.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of an automotive radiator embodying the invention.

FIG. 2 is a fragmentary partial perspective view of the elements of the radiator of FIG. 1.

FIG. 3 is an enlarged fragmentary sectional view taken substantially along line 3—3 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The fluid-to-fluid heat exchanger, embodied in the radiator 10 as illustrated in FIG. 1, comprises an upper tank 11, a lower tank 12 spaced therefrom, spaced tubes 13 of oval or flattened cross section spaced from each other with adjacent tubes being interconnected by serpentine fins 14 having their crests 15 attached to the tubes 13 in the customary manner as by welding, brazing, soldering or the like.

The tanks 11 and 12 have as component parts upper 16 and lower 17 header plates through which the tube ends 18 extend as shown in relation to the upper plate 16 of FIG. 2. The plates 16 and 17 each are provided with an outwardly extending flange as illustrated at 21 in FIG. 3 as a part of the lower plate 17. These flanges 21 describe a hole 22 into which the tube end 23 extends.

This tube end 23 is attached to the plate flange 21 by a primary load bearing joint 24. This joint is in two parts with the first part being the welded joint 24 and the second part being a solder coating 25 on the air side between the tube 13 and flange 21.

Where the heat exchanger is constructed of metal the load bearing joint 24 is preferably of welded construction. The term "weld" is used in its broadest sense and is usually formed with metal parts by heating and allowing metals to flow together. Where the parts are of plastic, and this heat exchanger can be constructed of strong plastic parts, these parts are united in a similar manner by heating to form the weld.

After the primary load bearing joint 24 is formed there is added the second part of the joint: the solder coating or layer 25 completely covering the outer surface side of joint 24. This outer surface side is shown generally at 35 in FIG. 3.

The main part of the load between the headers 16 and 17 and the tubes 13 is taken up by the primary load bearing joint 24. The sealant 25, particularly where it is solder or brazing on a welded joint, also has a load bearing function. However, its main purpose is to seal up and close leakage openings such as fissures, cracks, pin points and the like that occur either during the manufacturing process or in subsequent use. In any event, although the primary purpose of the sealant 25 is to prevent immediate or after developed leakage problems, it does function to distribute some of the forces between the tubes 13 and the header plates 16 and 17 and particularly those caused by internal pressure and temperature changes of the liquid on the interior 33 of the tubes.

With the usual flattened tubes 13 of the customary automotive radiator, and especially when these tubes comprise brass, internal pressure changes of the coolant, normally water, within the tubes causes the sides 34 of the tubes to tend to expand away from each other under internal pressure and contract back toward each other to the position shown in FIG. 2, for example, under these internal pressure as well as temperature changes. The primary joint 24 successfully absorbs these loads caused by pressure and temperature expansion and contraction.

Although this invention is most useful in conjunction with heat exchangers made of metal parts, it is also useful in heat exchangers made of reinforced plastic; and these are coming into increasing use. Whether of plastic or metal, the joint 24 is a primary load bearing joint. The sealant 25 in all these embodiments functions mainly as a sealant but is also, secondarily, a load distributing member.

Having described my invention as related to the embodiment shown in the accompanying drawings, it is my intention that the invention be not limited by any of the details of description, unless otherwise specified, but rather be construed broadly within its spirit and scope as set out in the appended claims.

I claim:

1. A radiator for a vehicle for exchanging heat between a liquid engine coolant and air, comprising:

a header plate having an inner surface exposed to said liquid coolant and an outer surface exposed to said air, said plate containing a plurality of spaced tube receiving holes each surrounded by a peripheral flange on said inner surface;

a plurality of liquid coolant receiving tubes, with each said tube extending into a separate said hole;

brazed or welded load bearing joints at said inner surface joining at least some or all of said tubes to said plate at the flanges about said holes and exposed to said liquid at said inner surface, said load

bearing joints being subject to the formation of leakage openings therein; and

a continuous, solid sealant coating on said plate at said holes on said outer surface completely covering the outer surface side of said load bearing joints and thereby sealing said load bearing joints against any leakage through any leakage openings;

said load bearing joints comprising weld metal and said sealant coating comprising solder.

2. A radiator for a vehicle for exchanging heat between a liquid engine coolant and air, comprising:

a header plate having an inner surface exposed to said liquid coolant and an outer surface exposed to said air, said plate containing a plurality of spaced tube receiving holes each surrounded by a peripheral flange on said inner surface;

a plurality of liquid coolant receiving tubes, with each said tube extending into a separate said hole;

brazed or welded load bearing joints at said inner surface joining at least some or all of said tubes to said plate at the flanges about said holes and exposed to said liquid at said inner surface, said load bearing joints being subject to the formation of leakage openings therein; and

a continuous, solid sealant coating on said plate at said holes on said outer surface completely covering the outer surface side of said load bearing joints and thereby sealing said load bearing joints against any leakage through any leakage openings;

said load bearing joints comprising brazing metal and said sealant coating comprising solder.

3. A radiator for a vehicle including upper and lower tanks, each of said tanks having a header plate provided with a series of tube holes, the header plates being in facing but spaced relation and each having opposed sides, a first of said sides being within the associated tank and having flanges surrounding said tube holes, and the second of said sides being relatively flat, a plurality of tubes extending in generally parallel relation between said header plates and having opposed ends disposed in respective ones of said tube holes in respective ones of said header plates, both ends of at least some

or all of said tubes being welded about their periphery to the adjacent one of the flanges on said header plates on said first side thereof to thereby form bonded primary load bearing joints which are nominally sealed but are subject to the formation of leakage openings, and a thin solid sealant coating on the second sides of both said header plates opposite said first sides and completely covering said joints oppositely of said welded

ends thereby sealing said joints against leakage through any of said leakage openings that might exist.

4. A radiator for a vehicle including two spaced engine coolant receiving tanks, each of said tanks having a header plate provided with a series of tube holes each surrounded by flanges only on the side of the associated plate within the tank, the header plates being in facing but spaced relation and each having a coolant contacting surface within the associated tank and an opposed air contacting surface, a plurality of tubes extending in generally parallel relation between said header plates and having opposed ends disposed in respective ones of said tube holes in respective ones of said header plates, both ends of at least some or all of said tubes being welded or brazed to the flanges on the adjacent one of said header plates at said coolant contacting surface to thereby form bonded primary load bearing joints which are subject to the formation of leakage openings, and a solid sealant coating on the air contacting surface of both said header plates completely covering said joints oppositely of said brazed or welded ends thereby sealing said joints against leakage through any of said leakage openings that might exist.

5. A radiator for a vehicle having an engine and including a pair of spaced engine coolant receiving tanks, each of said tanks having a header plate provided with a series of tube holes extending through the respective plate from an air side thereof to an opposed coolant side thereof within the associated tank, each of said tube holes, on said coolant side, being provided with a substantially peripherally extending flange directed into the associated tank, said header plates being in facing but spaced relation, a plurality of open ended tubes extending in generally parallel relation between said header plates and having opposed ends disposed in respective ones of said tube holes in respective ones of said header plates, both ends of at least some or all of said tubes being welded or brazed to the flange of the tube holes in which they are received on said liquid side of the corresponding header plate to thereby form primary load bearing joints which are nominally sealed but are subject to the formation of leakage openings, and a solid sealant solder coating on the air side of both said header plates completely covering said primary load bearing joints opposite of said brazed or welded ends thereby sealing said joints against leakage through any of said leakage openings that might exist.

6. The radiator of claim 5 wherein said both ends of all of said tubes are welded or brazed.

* * * * *

Fig. 1.

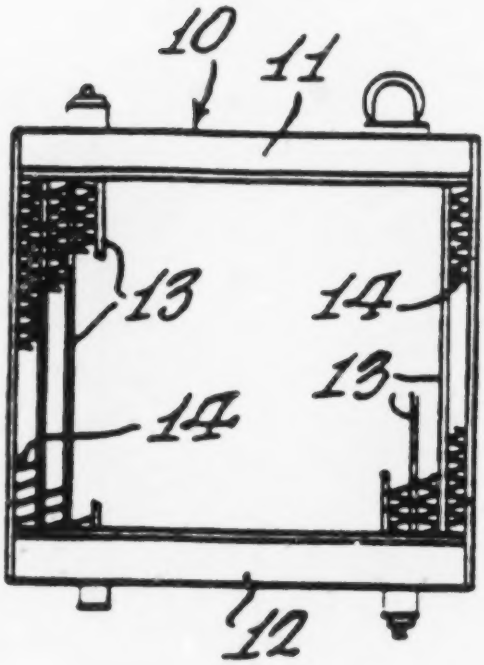
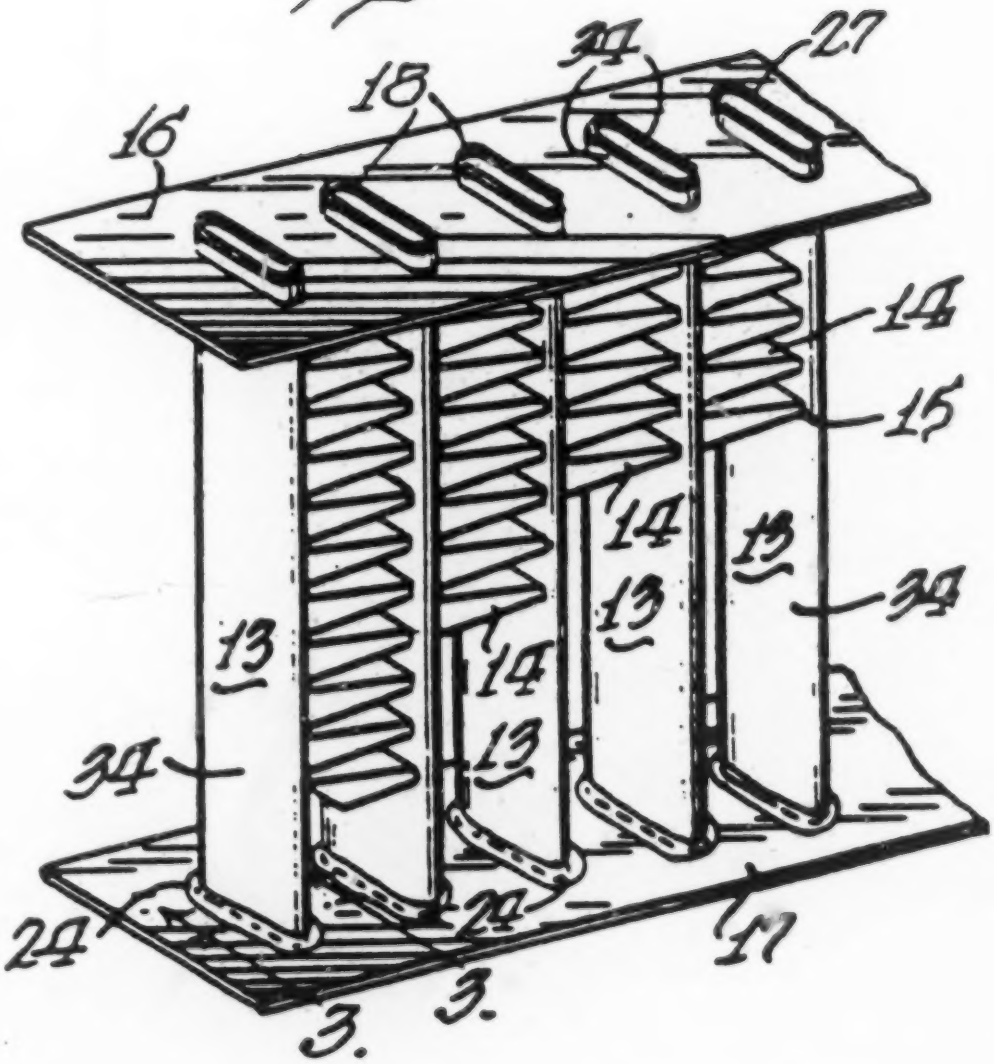


Fig. 2.



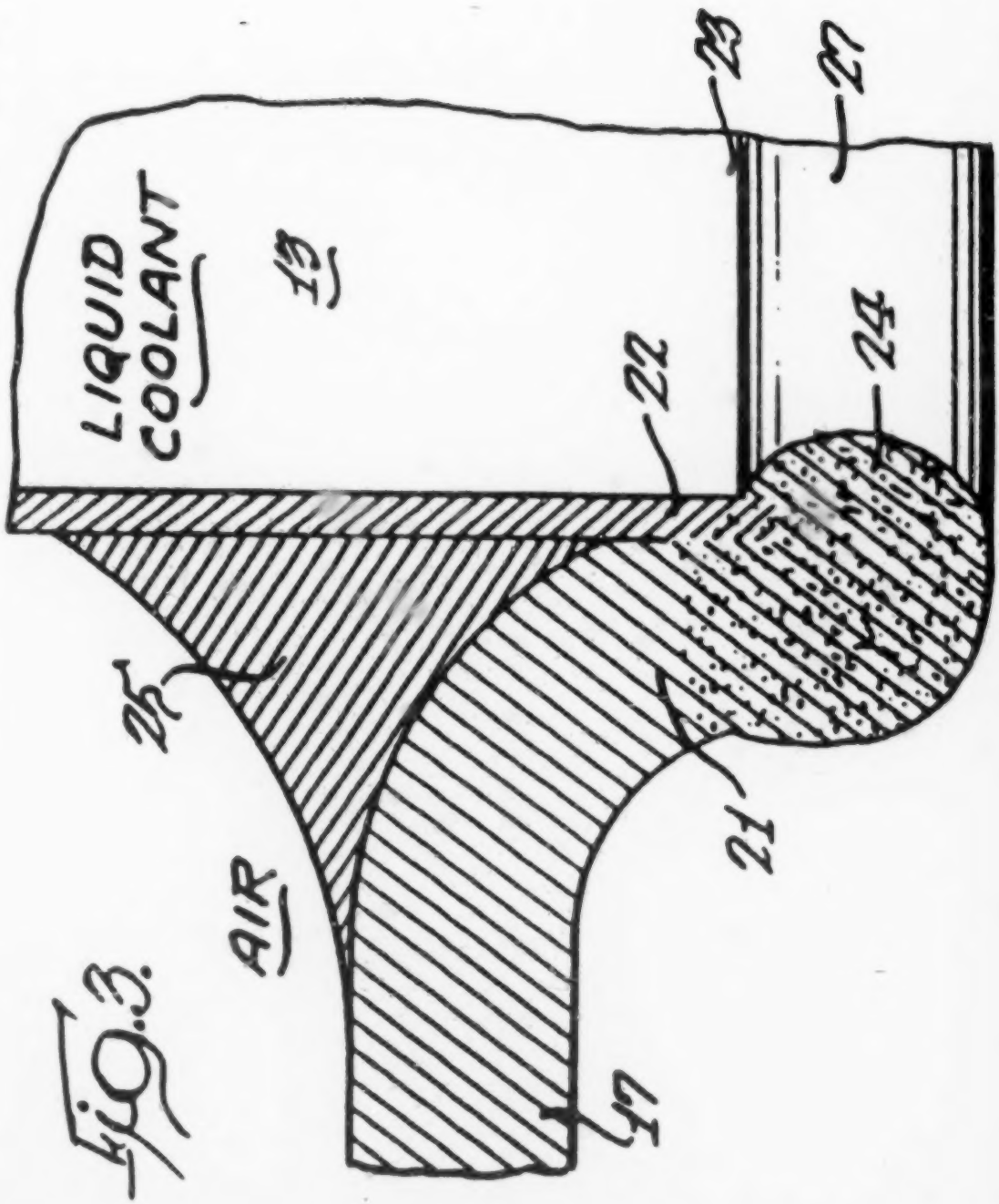


Fig. 3.

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No. 90-1477

IN THE

Supreme Court of the United States

OCTOBER TERM, 1990

THE ALLEN GROUP INC., d/b/a THE G&O MANUFACTURING COMPANY,
Petitioner,

v.

MODINE MANUFACTURING COMPANY,
Respondent.

On Petition for a Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

RESPONDENT'S BRIEF IN OPPOSITION

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QUESTION PRESENTED FOR REVIEW

Whether the United States Court of Appeals for the Federal Circuit, both in this case and in the overwhelming majority of other cases in which it has considered the issue of obviousness, has followed the approach this Court set forth for determining obviousness by first considering prior art and then, separately, considering objective or secondary factors such as "commercial success" and "long felt but unsolved needs."

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THE ALLEN GROUP INC., d/b/a
THE G&O MANUFACTURING COMPANY,
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v.

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Respondent.

On Petition for a Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

RESPONDENT'S BRIEF IN OPPOSITION

STATEMENT OF THE CASE

A. Proceedings Below

In September 1985 Modine[1] brought this action against Allen for infringing United States Patent No. 4,529,034 (the "'034 patent"). (App. at A-40 to A-52)[2] Following a six-week liability trial the jury, on April 21, 1990, returned special verdicts rejecting Allen's challenges to the validity of

[1] Modine is not owned by a parent company, nor does it have any non-wholly-owned subsidiaries.

[2] The Appendix to the Petition is referred to as "App.," the Joint Appendix in the Federal Circuit Court is referred to as "Jt. App.," and the trial transcript is referred to as "Tr." and citations to it are identified by volume and page.

the '034 patent and, by clear and convincing evidence, finding it had been willfully infringed by Allen. The jury specifically rejected Allen's defenses of anticipation, obviousness, incorrect inventorship, inequitable conduct, and the on-sale bar. (Tr. 21:4175-79; Jt. App. at 531-35) Two weeks later, after the damage trial, this same jury awarded Modine more than $55 million in compensatory damages. (Tr. 29:5476-77) Ruling on post-trial motions, and specifically on Allen's motion for judgment notwithstanding the verdict, the trial court upheld every one of the jury's liability verdict findings but remitted the damages figure to $14 million. Allen appealed to the Court of Appeals for the Federal Circuit arguing that the district court had erred in confirming the jury's rejection of Allen's obviousness and inequitable conduct defenses. The Federal Circuit affirmed the judgment, noting that even on *de novo* review the jury's findings on obviousness were correct. (App. at A-3) Allen's subsequent motion for rehearing by the Federal Circuit was denied on December 17, 1990.

Allen now solicits this Court's fresh determination that the '034 patent is invalid on the ground of obviousness, notwithstanding the complete rejection of this defense by the jury, by the trial court, and (twice) by the Federal Circuit. The heart of Allen's petition is the same argument it made at trial and on appeal below: the claim that certain written articles, as interpreted by expert witnesses presented by Allen, satisfied its burden of proving the obviousness of the invention disclosed in the '034 patent. Carefully omitted from Allen's brief, however, is the plentiful evidence against its interpretation of the articles and the other evidence of nonobviousness, all of which was carefully considered by the jury and recognized by both the trial judge and the Federal Circuit. Similarly, Allen now argues that the trial court should have determined obviousness and that, at any rate, the trial court improperly instructed the jury on what factors

could be considered in determining whether the invention was obvious. Yet Allen failed to raise any objection to submitting that issue to the jury or to the form of that instruction.

B. The Patent-in-Suit

Modine's Beta-Weld™ heavy duty truck radiator, based on the '034 patent, was the culmination of a ten-year research effort that cost $11 million. (Tr. 2:216, 6:1024, 9:1528; Jt. App. at 2566-95, 2679-843) The Beta-Weld™ revolutionized the heavy duty truck industry by increasing the useful life of a radiator ten-fold over existing radiators, whose fundamental design had not changed in ninety years. (Tr. 1:90-92, 97, 111, 9:1446-49) The Beta-Weld™ radiator could easily last through the 500,000-1,000,000 mile lifetime of a heavy-duty truck; previous radiators typically suffered incapacitating failure after than no more than 100,000-200,000 miles on the road, with failures sometimes occurring after only 10,000-30,000 miles. (Tr. 1:96, 1:136-37, 9:1446-48, 23:4312) Despite initial industry skepticism that a radiator could achieve these results, Modine's Beta-Weld™ enjoyed great commercial success because of its remarkable durability and reliability. (Tr. 1:110-18, 1:123-26, 2:264-65, 274, 275, 9:1449-51, 1462-68, 1473-82; Jt. App. at 1243, 1278-322) This success led Allen to copy the Beta-Weld™ and to market it under the name "Ultra-Fused." (Tr. 1:160-62, 167, 10:1829, 1873, 1884-89, 1891-97; Jt. App. at 1197-98, 1200) Allen itself clearly recognized the revolutionary durability of the Beta-Weld™. In its advertising, Allen claimed its copycat "Ultra-Fused" radiator had a "million mile life expectancy" and "achieve[d] significantly longer radiator life by strengthening the tube-to-header connection, currently the source of the most frequent failure problem in the radiator industry." (Tr. 1:169-70; Jt. App. at 1204-06)

The tube-to-header connections referred to by Allen are the joints in each radiator that provide a sturdy and leakproof seal between each of the 400-600 tubes of the radiator and the two opposed header plates, each of which has corresponding holes and flanges into which the tubes fit. The '034 patent describes an invention in which each tube contains a weld bond on the water side of the joint, with these welds having leakage openings. The welded joints also contain an air-side seal of solder. This combination creates a radiator that is structurally very strong, leakproof, and almost impervious to solder-induced corrosion—called solder bloom—which plugs up the tubes. At the time the inventors, Zalman P. Saperstein and Russell C. Awe, were working on the invention, there were no durable truck radiators with welded joints, only radiators constructed entirely with solder joints. (Tr. 1:90-97, 9:1443)

The jury (like the Patent Office) properly found that there were significant differences between the prior art and the invention of the '034 patent. Among the disclosures made to and considered by the Patent Examiner before the '034 patent was granted were the Patriarca Patent No. 3,078,551 (Jt. App. at 2350-53) and the Martucci Patent No. 3,496,629 (Jt. App. at 2320-22). These patents, which involved heat exchangers used in nuclear reactors, covered the same issue addressed in the 1957 and 1968 Patriarca articles cited by Allen (Pet. at 3), namely the use of brazing as a sealant in the nuclear industry (the 1957 article was specifically cited in the Patriarca patent). Only two of the six claims in the '034 patent encompass brazing; the four other claims specify solder as the sealant, not brazing. More significantly, the Patriarca articles addressed the problems of constructing a nuclear heat exchanger processing radioactive water, not (as with the '034 patent) a radiator for a vehicle. As a result, the nuclear heat exchangers discussed by Patriarca are not like vehicular radiators at all: they are

very heavy with very thick tube sheets; they have no flanges in their header plates; they have no tubes welded or brazed to the flanges, as specified in every claim of the '034 patent; and they require perfect, leak-proof welds, unlike the deliberately leaky welded joints specified in every claim of the '034 patent. Simply put, the Patent Examiner, the jury, the district court, and the Federal Circuit consistently determined that these two articles did not teach or suggest the invention of the '034 patent.

The jury, the trial court, and the Federal Circuit also considered Allen's proffered prior art consisting of aluminum radiator repair. First, as every previous forum has found, none of the three aluminum repair articles cited by Allen disclosed or taught the invention claimed in the '034 patent—"loadbearing joints being subject to formation of leakage openings therein; and a continuous solid sealant coating . . . completely covering the outer surface [air side]"—of the radiator joint. (App. at A-46 to A-47) Second, Modine's patent involves the manufacture of new and leakproof truck radiators, not methods of repairing defective radiators, and repair is fundamentally different from original design and manufacture. (Tr. 2: 244-46, 268, 274-76) Third, the author of one of the articles, William Weltman, testified at trial. Mr. Weltman was not believed by the jury and justifiably so; for example, he testified that in the 1960s radiators were repaired by flooding their joints; yet in a 1970 speech, in which Mr. Weltman "[d]escribed every way we knew of repairing an aluminum heat exchanger," the flooding of joints was not mentioned at all. (Tr. 11:2144, 2153-60)

Despite Allen's blanket assertions to this Court that five pieces of alleged prior art "disclosed" the '034 patent (Pet. at 3-4), the jury and the two lower courts have found otherwise. Furthermore, Allen itself, when it sought to

patent its copycat "Ultra Fused" radiator in 1983 (at a time when it was unaware of the contents of Modine's pending application for the '034 patent) failed to cite, mention, or discuss a single piece of the prior art, which it now claims fully disclosed the invention, even though Allen's patent application had claims virtually identical to those of the '034 patent. Thus, Allen itself did not believe that this prior art taught the invention. In short, Allen is asking this Court, without any opportunity to hear the witnesses, assess their credibility, or weigh the contrary proof, to retry the facts.

REASONS WHY THE PETITION SHOULD BE DENIED

Allen argues that "[i]n this and all cases involving the issue of obviousness, the Federal Circuit is ignoring 35 U.S.C. section 103 and is disobeying this Court's landmark decisions construing that statute . . . ." (Pet. at 6)

This is wrong. In both this case and in the overwhelming majority of other cases in which the Federal Circuit has considered the issue of obviousness (including the cases Allen itself has cited), the Federal Circuit explicitly has addressed (not ignored) 35 U.S.C. § 103 and followed (not disobeyed) the approach this Court set forth for applying that statutory provision.

Section 103 provides, in pertinent part:

> A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

This Court held in *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966):

> Under section 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill and the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.[3]

Later in the *Graham* opinion, this Court emphasized the particular importance of these objective or secondary considerations in determining obviousness:

> These legal inferences or subtests do focus attention on economic and motivational rather than technical issues and are, therefore, more susceptible of judicial treatment than are the highly technical facts often present in patent litigation . . . . Such inquiries may lend a helping hand to the judiciary which, as Mr. Justice Frankfurter observed, is mostly ill-fitted to discharge the technological duties cast upon it by patent legislation . . . . They may also serve to 'guard against slipping into use of hindsight,' . . . and to resist the temptation to read into the prior art the teachings of the invention in issue.

383 U.S. at 35-36 (citations omitted). In no subsequent case has the Court modified the unified *Graham* approach for applying 35 U.S.C. § 103. *See, e.g., Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969);

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[3] Allen, in its attempt to divorce consideration of prior art from consideration of objective evidence, misleadingly separated the first two sentences of this quotation dealing with prior art from the last two sentences dealing with objective evidence. (Pet. at 7) This Court, however, presented these issues together in one paragraph, as part of a unified inquiry.

Dann v. Johnston, 425 U.S. 219 (1976); *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273 (1976).

A. The Question of Obviousness Was Properly Decided by the Jury and Appropriately Reviewed by the District Court and the Federal Circuit

In this case, the Federal Circuit faithfully followed the approach of *Graham*, concluding:

> "[R]easonable jurors could conclude that the differences between the prior art and the claimed invention were significant enough to render the invention nonobvious to one of ordinary skill in the art. *Moreover*, considerable objective evidence of nonobviousness, in the form of long-felt but unmet need and resulting commercial success, was presented in this case.

App. at A-3 (emphasis added). The unambiguous language of the opinion demonstrates that the Federal Circuit (consistent with *Graham*) first determined nonobviousness based on prior art and then, separately, confirmed that determination by considering the objective or secondary evidence of nonobviousness.

This is precisely the analysis set forth by this Court in *Graham*. Allen's real quarrel is not with the mode of analysis applied by the Federal Circuit; Allen simply is unhappy with the Federal Court's conclusion that "the jury's implied findings relating to obviousness were supported by substantial evidence" and that "even on *de novo* review" those findings were not incorrect. *Id.*[4]

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[4] Citing *Dennison Manufacturing Co. v. Panduit Corp.*, 475 U.S. 809 (1986) *(per curiam)*, Allen contends the Federal Circuit was obliged to retry the question of obviousness, by "compar[ing] the indisputable disclosures of the published prior art with the claims of the patent to determine whether the 'invention' would have been obvious to a person of ordinary skill

Allen baldly contends that its evidence at trial conclusively met its burden of proving, by clear and convincing evidence, that the '034 patent is invalid on the ground of obviousness, even though Allen's evidence was hotly contested and countered by substantial contrary evidence. In other words, Allen maintains that the Federal Circuit, the district court in its JNOV opinion, and the jury all committed error by not accepting Allen's inferences and interpretations. Yet Allen fails to mention the legions of evidence—"substantial evidence"—carefully considered by the jury in determining that Allen had failed to prove that the invention was obvious. Particularly misleading is Allen's failure to apprise this Court of evidence which seriously challenged the relevance and probative value of the "five articles" cited by Allen. *See supra* at 4-6.

Ironically, only by completely subverting the analysis required by 35 U.S.C. § 103 and by *Graham* has Allen been able to concoct its argument to this Court. Pursuant to *Graham* and 35 U.S.C. § 103, the district court instructed the jury specifically to make factual inquiries into "the scope and content of prior art, the differences between the prior art and the claims at issue, the level of skill in the art, and the objective evidence." (Tr. 21:4151) The court carefully described the elements of each of these four factors. (Tr. 21:4147-53) On this basis, the jury was then asked to

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in the art." (Pet. at 13-14). In *Dennison*, however, this Court held that the Federal Circuit, when it disagrees with the "District Court's assessment of the prior art," and substitutes its own "view of factual issues for that of the District Court," is obliged to apply Fed. R. Civ. P. 52(a), and explain why the district court's findings on obviousness were clearly erroneous, or else explain why Rule 52(a) does not apply at all. *Id.* at 810-11. Here, of course, the Federal Circuit found no error in the district court's handling of the obviousness issue and affirmed its judgment.

answer the following special verdict: "Do you find that [Allen] has proved by clear and convincing evidence that the subject matter of each claim of the Modine radiator patent, taken as a whole, would have been obvious to a person of ordinary skill in the art as of the time the patented invention was made, and that the claim is therefore invalid?" (Tr. 21:4176) The district court correctly instructed the jury under *Graham*, and the jury conscientiously applied those instructions in reaching its verdict.[5]

Under the guise of "applying" *Graham*, Allen in fact is asking this Court to ignore it.

B. The Federal Circuit Has Fully Implemented 35 U.S.C. § 103 and the Teachings of this Court in Deciding the Issue of Obviousness in Patent Litigation

The body of Federal Circuit decisions involving obviousness with respect to patents, including the cases cited by Allen, fails to support Allen's contention that "[i]n this and all cases involving the issue of obviousness, the Federal Circuit is ignoring 35 U.S.C. section 103 and disobeying this Court's landmark decisions construing that statute . . . ." (Pet. at 6) Specifically, Allen is dead wrong in its discussion of three decisions—*In re Sernaker*,[6] *Stratoflex, Inc. v. Aeroquip Corp.*,[7] and *W. L. Gore & Associates, Inc. v. Garlock*,

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[5] Remarkably, Allen now argues that the trial court erred in its instruction to the jury. But Allen did not raise any objection to the trial court's instruction on this issue. (Tr. 19: 3843-63; Jt. App. at 371-80, 466-67)

[6] 702 F.2d 989 (Fed.Cir. 1983)

[7] 713 F.2d 1530 (Fed. Cir. 1983)

Inc.[8]—whose "erroneous teachings," Allen claims, "have become a virtual litany in the Federal Circuit." (Pet. at 9-10)

In *Sernaker*, the Federal Circuit first undertook an exacting analysis of the prior art.[9] The court concluded that the "claimed invention would not have been obvious to one of ordinary skill in the art . . . at the time of the invention." 702 F.2d at 996. Thereafter, the court held that the "secondary considerations . . . *also* require a finding of nonobviousness if the matter be otherwise doubtful." *Id.* (emphasis added; citation to *Graham* omitted).

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[8] 721 F.2d 1540 (Fed.Cir. 1983), *cert. denied*, 469 U.S. 851 (1984)

[9] The court began its analysis of the Board of Patent Appeals' denial of the patent as follows:

> We may assume, for purposes of this decision, that all the prior art references in this case are sufficiently related to one another and to a related and common art, that the hypothetical person skilled in the art must be presumed to be familiar with all of them. That being so, the next questions are (a) whether a combination of the teachings of all or any of the references would have suggested (expressly or by implication) the possibility of achieving further improvement by combining such teachings along the line of the invention in suit, and (b) whether the claimed invention achieved more than a combination which any or all of the prior art references suggested, expressly or by reasonable implication. These manifestly related tests are indicated as appropriate . . . [in] reviewing . . . decisions of the board [of Patent Appeals] denying patentability under § 103 on obviousness grounds.

702 F.2d at 994.

In *Stratoflex*, the Federal Circuit affirmed the trial court's judgment of invalidity after determining that the "findings undergirding the conclusion of obviousness" were not "clearly erroneous in light of the entire record." 713 F.2d at 1535. The court again undertook a thorough review of evidence concerning the "Scope and Content of the Prior Art," "Differences Between the Claimed Invention and the Prior Art," and the "Level of Ordinary Skill." *Id.* at 1535-38. The court then discussed "Secondary Considerations" (noting that "relevant evidence on the obviousness-nonobviousness issue, as the Court said in *Graham* . . . includes evidence on what has now been called 'secondary considerations' ") and found harmless error in the trial judge's refusal to include her findings on "Secondary Considerations" in her nonobviousness analysis. *Id.* at 1539. *Stratoflex* is completely consistent with *Graham* and, like *Sernaker*, explicitly follows it.

In *Gore*, the Federal Circuit reversed the district court's finding on obviousness because the lower court improperly applied the *Graham* analysis with respect to one patent, 721 F.2d at 1550, and completely ignored the *Graham* criteria with respect to the second patent. *Id.* at 1555.

With respect to the first patent, while "the district court recognized that analysis of the obviousness issue under § 103 requires determination of the scope and content of the prior art, the differences between the prior art and the claims at issue, and the level of ordinary skill in the pertinent art," it erred in its consideration of the evidence. *Id.* at 1550. For example, the court below "lost sight of the principle that there must have been something present in those teachings to suggest to one skilled in the art that the claimed invention . . . would have been obvious." *Id.* at 1551. Before even addressing the secondary evidence, the Federal Circuit found:

> On the entire record and in view of all the references, each in its entirety, it is clear that a person of ordinary skill confronted with a PTFE tape breakage problem would have either slowed the rate of stretching or increased the temperature to decrease the crystallinity. Dr. Gore did neither. He proceeded contrary to the accepted wisdom of the prior art by dramatically increasing the rate and length of stretch *and* retaining crystallinity. That fact is strong evidence of nonobviousness.

Id. at 1552 (*citing United States v. Adams*, 383 U.S. 39 (1966).

With regard to the second patent, the trial court confused "inherency and obviousness" and assumed the patent was obvious without undertaking the *Graham* analysis. The Federal Circuit, after determining that the *Graham* analysis had not been applied, remanded the case in view of the district court's failure to consider the "strong showing of objective evidence of nonobviousness here present." *Id.* at 1555. Unremarkably, the Federal Circuit stated that "objective evidence of nonobviousness, i.e., the indicia of *Graham* . . . may in a given case be entitled to more weight or less, depending on its nature and its relationship to the merits of the invention." *Id.* The Federal Circuit did not mandate that "objective evidence" decide the issue of obviousness; it simply reaffirmed that all of the *Graham* factors should be considered.

Not only do the three cases showcased in Allen's petition fail even remotely to support its claim that the Federal Circuit has "subver[ted]" *Graham*, but the "litany" of cases which Allen then parades demonstrates the contrary.

(Pet. at 10)[10] In case after case (including this one), the Federal Circuit faithfully has followed *Graham*.

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[10]*See, e.g., Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051 (Fed. Cir.), *cert. denied*, 488 U.S. 825 (1988) (Federal Circuit found that the trial court had "impermissibly used hindsight to reconstruct the claimed invention from prior art with the invention before it . . . rather than viewing the invention from the position of a person of ordinary skill at the time it was made" and "also erroneously analyzed and weighed secondary considerations of nonobviousness"); *Alco Standard Corp. v. Tennessee Valley Authority*, 808 F.2d 1490, 1498-501 (Fed. Cir. 1986), *cert. dismissed*, 483 U.S. 1052 (1987) (Federal Circuit specifically cited and evaluated each of the *Graham* criteria and, "[i]n light of the district court's findings and the evidence in the record, including the strong secondary considerations indicating nonobviousness," upheld "the district court's conclusion that the invention . . . would not have been obvious to one of ordinary skill in the art"); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379-383 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987) (Federal Circuit first determined that the prior art did not support a holding of obviousness and then confirmed that determination by considering the objective evidence); *Loctite Corp. v. Ultraseal, Ltd.*, 781 F.2d 861, 875 (Fed. Cir. 1985) (Federal Circuit remanded because "the district court failed to make sufficient *Graham* findings and otherwise improperly assessed obviousness"); *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*, 739 F.2d 1573, 1574-75 (Fed. Cir. 1984), *cert. denied*, 471 U.S. 1065 (1985) (Federal Circuit held that the trial court "erred as a matter of law in refusing to consider evidence of secondary considerations" since the "section 103 test of nonobviousness set forth in *Graham* is a four part inquiry comprising, not only the three familiar elements (scope and content of prior art, differences between the prior art and the claims at issue, and level of ordinary skill in the pertinent art), but also evidence of secondary considerations when such evidence is, of course, present"); *Jones v. Hardy*, 727 F.2d 1524, 1529 (Fed. Cir. 1984) (Federal Circuit

CONCLUSION

For the foregoing reasons, the Petition for Writ of Certiorari should be denied.

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reversed the district court's determination of obviousness because there were "no specific factual findings on the scope and content of the prior art, differences between the prior art and the claims at issue, level of ordinary skill in the pertinent art, or other indicia useful in determining the obviousness/nonobviousness question").

(3)

No. 90-1477

Supreme Court, U.S.
FILED
APR 29 1991
OFFICE OF THE CLERK

In the Supreme Court

OF THE

United States

OCTOBER TERM, 1990

THE ALLEN GROUP INC., d/b/a
THE G&O MANUFACTURING COMPANY,
Petitioner,

VS.

MODINE MANUFACTURING COMPANY,
Respondent.

On Petition for Writ of Certiorari
To the United States Court of Appeals
For the Federal Circuit

PETITIONER'S REPLY BRIEF

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PETITIONER'S REPLY BRIEF*

Respondent Modine appears to concede that obviousness is a question of law to be decided by the court according to the requirements of 35 U.S.C. section 103 ("section 103") and *Graham v. John Deere Co.*, 383 U.S. 1 (1966). Opp., pp. i, 6-14. Modine appears also to concede that obviousness must be determined by comparing the relevant prior art with the subject matter claimed in the patent. *Id.*, pp. i, 4, 5, 10-14. Indeed, section 103 focuses on "the differences between the subject matter sought to be patented and the prior art," and *Graham* expressly mandates that the "differences between the prior art and the claims at issue are to be ascertained." 383 U.S. at 17.

* Petitioner's non-wholly owned subsidiaries are listed in the Petition (p. ii).

Modine is entirely incorrect, however, in stating that this mandate was obeyed in this case and is followed by the Federal Circuit generally. Opp., pp. i, 6-14. In fact, that mandate was disobeyed in this case precisely because, as the trial court observed, the law of the Federal Circuit requires that "secondary considerations *must*, when present, be considered *with* all the evidence in the determination of obviousness, and not just when a doubt remains after reviewing the prior art." Pet. Appendix, p. A-16 (emphasis added), citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed.Cir. 1983).

Contrary to the mandate of *Graham*, neither the trial court nor the court of appeals ever ascertained any difference between the prior art and the claims at issue. The trial court found that "the relevant prior art includes aluminum radiators, heat exchangers in the nuclear industry . . . and repair techniques" (App., p. A-16), but never even identified, let alone analyzed, any differences between the prior art publications in those fields and the subject matter claimed in the '034 patent. Instead, the trial court merely deferred to the jury's verdict (App., pp. A-16 to A-17), which also failed to ascertain any such differences.[1]

Similarly, the court of appeals abdicated *its* duty to decide the legal question of obviousness, stating simply that *"reasonable jurors could conclude* that the differences between the prior art and the claimed invention were significant enough to render the invention nonobvious to one of ordinary skill in the art." App., p. A-3 (emphasis added). This statement does not "demonstrate[ ] that the *Federal Circuit* . . . first determined nonobviousness based on prior art. . . . " *See* Opp., p. 8. On the contrary, it demonstrates that the Federal Circuit deferred to the jury, even though the jury

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[1] Modine's assertion that Allen did not object to the trial court's instruction on obviousness (Opp., p. 10, n.5) is both erroneous and irrelevant. Allen petitions for certiorari on the ground that the court of appeals in this case "decided a federal question in a way that conflicts with applicable decisions of this Court." Sup.Ct.R. 10.1(c). That decision was consistent with, and followed from, the court of appeals' own erroneous precedents. Those precedents, so long as they are permitted to stand uncorrected by this Court, will continue to require trial judges to instruct juries as the trial court did in this case.

was never asked to reach—and never did reach—any "conclusion" based on the statutory criteria for obviousness, as distinct from the secondary considerations. *See* fn. 1, *supra*. The court of appeals also said: "Nor, given [the jury's implied] findings, was its conclusion on obviousness incorrect, even on *de novo* review." App., p. 3. The nature of this "*de novo* review" was not explained, but there is no indication that the court ascertained any differences between the prior art and the claimed invention, or that it separated the statutory criteria of obviousness from the secondary considerations.

This case epitomizes the doctrinal changes brought about by the Federal Circuit, and their tendency to prevent meaningful review of judgments and verdicts on obviousness. The heat exchanger joint construction claimed in the '034 patent was taught in two sets of prior art publications, one describing heat exchangers used in nuclear plants and space vehicles,[2] and the other describing techniques for repairing leaky joints in aluminum

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[2] The Patriarca articles taught the same joint construction claimed in the '034 patent. Pet., pp. 3-4. They described the "obvious" combination of welded tube-to-header joints and a sealant coating on the side opposite the weld. *Id.*, p. 3. There is no basis for Modine's assertion that the jury "found that there were significant differences between the [Patriarca] prior art and the invention of the '034 patent." Opp., p. 4. Neither the district court nor the court of appeals identified even one such difference, and the "differences" alleged by Modine are spurious. There is no meaningful distinction in this context between brazing and soldering; braze and solder are both metal alloys that produce structurally equivalent coatings and differ only in the temperature at which each melts. Pet., p. 3, n.2. The relevance of the Patriarca articles is not diminished by the fact that they describe heat exchangers having applications in nuclear power plants. Those heat exchangers also function as vehicular radiators (in space vehicles), and are indisputably relevant prior art. Pet., pp. 11-12; App. A-16. None of the other "differences" put forward by Modine affects the plain teaching of Patriarca: that it is "obvious" to weld joints on one side for strength and to coat them with a metal alloy on the other side to seal against leaks. Pet., pp. 11-12.

automotive radiators.[3] There was no issue as to the content of those articles.[4] The trial court found, and Modine does not dispute, that the articles are within the *scope* of the relevant art. Likewise, Modine does not contend that there was any factual dispute as to the third statutory criterion—the level of ordinary skill in the art. Under these circumstances, and "[a]gainst this background, the obviousness or nonobviousness of the subject matter [should have been] determined" by the court. *Graham v. John Deere Co., supra,* 383 U.S. at 17.

Nevertheless, the trial court followed Federal Circuit law in lumping commercial success and other secondary considerations together with the prior art, submitting all these factors to the jury, and then deferring to the jury's verdict. Modine compensated for its inability to identify any material difference between its "invention" and the prior art by emphasizing the commercial success of its product. Modine's pivotal reliance on secondary considerations is amply illustrated by its exaggerated claims regarding that

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[3] The three articles describing aluminum automotive radiator repairs independently taught the claimed invention. Contrary to Modine's denial (Opp., p. 5), those articles do teach that "loadbearing joints [that are] subject to formation of leakage openings" can be sealed with solder or other sealants which solidify to form an extensive sealant coating on the "outer surface" of the joint. *That teaching is the point of these articles describing how to repair leakage openings in radiator joints.* See Pet., p. 4. Modine's spurious argument that "repair" is different from "manufacture" is fully refuted in our petition. Pet., p. 12, n.14. Modine's argument that Mr. Weltman "was not believed by the jury" is unsupported and irrelevant: the plain statements of the three prior art publications were in no way dependent on the testimony of Mr. Weltman.

[4] Modine falsely asserts that these references had to be "interpreted" by expert witnesses, and that there was "plentiful evidence against [Allen's] interpretation" of them. Opp., p. 2. The articles are themselves prior art. Their content was, and remains, undisputed. Their disclosures required no "interpretation," and Modine cannot identify any issue as to their meaning or substance.

evidence in its brief in this Court.[5] Opp., p. 3. Those, of course, are the very factors that the Federal Circuit has elevated to primary criteria of patentability, in direct conflict with the decisions of this Court.

Modine denies that the Federal Circuit has deviated in any way from *Graham* in developing section 103 doctrine. Opp., pp. 10-14. To support its claim that Allen is "dead wrong," Modine offers selective readings of the first three of a long line of Federal Circuit cases on obviousness.[6] Modine's exegesis of those cases ignores what they plainly hold: that evidence of secondary considerations is often the *most* probative evidence on the issue of obviousness and *must* be considered in every case, even if the prior art shows the invention to be obvious. Pet., pp. 9-11.

In these and other cases, the Federal Circuit has redefined the section 103 standard to include secondary considerations as a mandatory fourth factor which must be considered in every case.[7]

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[5] In particular, Modine's claim of a long-felt need misrepresents the record. Modine's argument (Opp., p. 3) falsely implies a preexisting need for Mr. Saperstein's "million-mile" Beta-Weld radiator at the time he "invented" it in 1979. In fact, Mr. Saperstein and other Modine witnesses admitted at trial that there was not even a 500,000-mile truck in 1979 (Tr., pp. 1-108 to 1-109); that there was still not a million-mile truck at the time of trial in 1989 (Tr., p. 1-109); and that in the mid-1980's, the average life of heavy-duty trucks, just like the average life of conventional radiators, was only 100,000 to 200,000 miles (Tr., p. 9-1465). The Beta-Weld thus fulfilled Mr. Saperstein's 1979 prediction that his project would be "at the right place at the right time" (Pet., p. 15; quoting Joint App., p. 2687) and was, in the words of one Modine witness, "serendipitous" (Tr., p. 9-1457). The fortuitous development of a commercial demand for Modine's new radiator a few years *after* its development shows why commercial success often does not signify invention.

[6] *In re Sernaker*, 702 F.2d 989 (Fed.Cir. 1983); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530 (Fed.Cir. 1983); *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed.Cir. 1983), cert. denied, 469 U.S. 851 (1984).

[7] *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1050 (Fed.Cir.), *cert. denied*, 488 U.S. 825 (1988); *Custom Accessories, Inc.*

The Federal Circuit has extolled such evidence as "the most probative and cogent evidence . . . [which] may often establish that an invention appearing to have been obvious was not."[8] The Federal Circuit has gone so far as to rebuke trial judges for following this Court's precedents, rather than the Federal Circuit's own.[9] Numerous scholars have criticized the Federal Circuit's subversion of *Graham* and subordination of the statutory criteria to the inferential evidence of secondary considerations. Pet., pp. 15-16 & n.20.

The doctrine of the Federal Circuit is a decided departure from the teachings of *Graham* and the other landmark authorities of

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v. Jeffrey-Allan Indus., 807 F.2d 955, 958 (Fed.Cir. 1986); *Simmons Fastener Corp. v. Illinois Tool Works*, 739 F.2d 1573, 1575 (Fed.Cir. 1984), cert. denied, 471 U.S. 1065 (1985).

[8] *Simmons Fastener Corp. v. Illinois Tool Works, supra* note 7, 739 F.2d at 1575, quoting *Stratoflex, Inc. v. Aeroquip Corp., supra*, 713 F.2d at 1538. In several cases cited in our petition (Pet., pp. 10-11), the Federal Circuit has held that nontechnical factors can confer patentability on an "invention" that would have been technically obvious from the prior art. *See, e.g., Alco Standard Corp. v. Tennessee Valley Auth.*, 808 F.2d 1490, 1499-1500 (Fed.Cir. 1986), cert. dismissed, 483 U.S. 1052 (1987).

[9] For example, in *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281 (Fed.Cir. 1985), *cert. denied*, 475 U.S. 1017 (1986), the court rebuked and reversed the district court for ruling, on the basis of *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273 (1976) and *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147 (1950), that "the law was well established that commercial success alone, or considered in combination with other secondary considerations, is insufficient to establish patentability where primary indicia of patentability was lacking." 776 F.2d at 306 & n.43. Similarly, in *Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549 (Fed.Cir. 1985), the court reversed a district court which had ruled, on the authority of *Anderson's Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969), that "if this Court determines from the first three factual inquiries that Fromson's patent is . . . obvious, secondary considerations cannot fill the gap." 755 F.2d at 1557. *See also* Merges, *Commercial Success and Patent Standards:* Economic Perspectives on Innovation, 76 Calif.L.Rev. 803, 819 & n.56 and cases cited there.

this Court. Contrary to Modine's assertion (Opp., p. 7), the *Graham* Court did not "emphasize[ ] the particular importance of these objective or secondary considerations." In fact, the *Graham* Court described these factors as "*secondary* considerations" which "focus attention on economic and motivational rather than technical issues." 383 U.S. at 17, 35-36 (emphasis added). These secondary considerations may have limited value as "legal inferences or subtests" which avoid difficult technical issues and focus instead on pedestrian facts that might indirectly, through a chain of inferences, bear on the obviousness issue. *Id.* at 35-36. Far from describing these factors as the *most* probative or cogent evidence on the issue of obviousness, this Court clearly indicated that their relevance is indirect or inferential, making them the *least* probative evidence on the issue of whether the differences between the claimed invention and the prior art would have rendered the invention obvious to a person of ordinary skill in the art.

The *Graham* Court predicted that there would be difficulties in applying the section 103 obviousness test, but stated its belief that "strict observance of the requirements laid down here will result in that uniformity and definiteness which Congress called for in the 1952 Act." 383 U.S. at 18. Far from strictly observing the requirements of section 103, the Federal Circuit has subordinated them to nonstatutory, nontechnical considerations which have rendered the patent law uncertain and eventuated confused decisions in many cases such as this one. The issue of whether a patent is obvious has, for all intents and purposes, been made an unreviewable question of fact for juries rather than a question of law to be decided by the court.

CONCLUSION

We respectfully request that the petition for certiorari be granted.

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